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As confidentially submitted to the Securities and Exchange Commission on August 7, 2020.

This draft registration statement has not been publicly filed with the
Securities and Exchange Commission and all information herein remains strictly confidential.

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Spruce Biosciences, Inc.

(Exact name of registrant as specified in its charter)

Delaware	2834	81-2154263
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

Spruce Biosciences, Inc.
2001 Junipero Serra Boulevard, Suite 640
Daly City, California 94014
(415) 294-1687
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Richard King
Chief Executive Officer
Spruce Biosciences, Inc.
2001 Junipero Serra Boulevard, Suite 640
Daly City, California 94014
(415) 294-1687
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Kristin VanderPas Alexa Ekman Cooley LLP 101 California Street, 5th Floor San Francisco, California 94111 (415) 693-2000	Samir Gharib Chief Financial Officer Spruce Biosciences, Inc. 2001 Junipero Serra Boulevard, Suite 640 Daly City, California 94014 (415) 294-1687	Brian J. Cuneo Drew Capurro Latham & Watkins LLP 140 Scott Drive Menlo Park, California 94025 (650) 328-4600

Approximate date of commencement of proposed sale to the public: As soon as practicable after this registration statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box: ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Proposed Maximum Aggregate Offering Price(1)(2)	Amount of Registration Fee
Common stock, par value $0.0001 per share	$	$

(1) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(o) of the Securities Act of 1933, as amended.

(2) Includes the aggregate offering price of additional shares that the underwriters have the option to purchase, if any.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

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The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state or other jurisdiction where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS (SUBJECT TO COMPLETION)

, 2020

Shares

Common Stock

This is an initial public offering of shares of common stock of Spruce Biosciences, Inc. We are offering shares of our common stock.

Prior to this offering, there has been no public market for our common stock. We have applied to list our common stock on the Nasdaq Global Market under the symbol "SPRB." We expect that the initial public offering price will be between $ and $ per share.

We are an "emerging growth company" under applicable Securities and Exchange Commission rules and have elected to comply with certain reduced public company reporting requirements for this prospectus and future filings.

Our business and an investment in our common stock involve significant risks. These risks are described under the caption "Risk Factors" beginning on page 13 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	*Total*
Initial public offering price	**$**	**$**
Underwriting discounts and commissions(1)	**$**	**$**
Proceeds, before expenses, to Spruce Biosciences, Inc.	**$**	**$**

(1) See the section titled "Underwriting" for additional information regarding compensation payable to the underwriters.

We have granted the underwriters an option for a period of 30 days to purchase up to additional shares of common stock from us at the public offering price, less the underwriting discounts and commissions.

The underwriters expect to deliver the shares of common stock to purchasers on , 2020.

Cowen **SVB Leerink** **Credit Suisse** **RBC Capital Markets**

, 2020

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We are responsible for the information contained in this prospectus and in any free-writing prospectus we prepare or authorize. We have not, and the underwriters have not, authorized anyone to provide you with different information, and we take no, and the underwriters take no, responsibility for any other information others may give you. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained in this prospectus is accurate as of any date other than the date on the front of this prospectus.

For investors outside of the United States: We have not, and the underwriters have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. Persons outside of the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside of the United States.

This prospectus includes our trademarks which are our property and are protected under applicable intellectual property laws. This prospectus also includes trademarks and trade names that are the property of other organizations. Solely for convenience, trademarks and trade names referred to in this prospectus appear without the ® and ™ symbols, but those references are not intended to indicate that we will not assert, to the fullest extent under applicable law, our rights, or that the applicable owner will not assert its rights, to these trademarks and trade names. We do not intend our use or display of other companies' trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus. This summary does not contain all of the information you should consider before investing in our common stock. You should read this entire prospectus carefully, including the sections in this prospectus titled "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," and our financial statements and the related notes included elsewhere in this prospectus, before making an investment decision. Unless otherwise indicated, all references in this prospectus to "Spruce," the "company," "we," "our," "us" or similar terms refer to Spruce Biosciences, Inc.

Overview

We are a late-stage biopharmaceutical company focused on developing and commercializing novel therapies for rare endocrine disorders with significant unmet medical need. We are initially developing our wholly-owned product candidate, tildacerfont, as the potential first non-steroidal therapy to offer markedly improved disease control and reduce steroid burden for patients suffering from classic congenital adrenal hyperplasia, or CAH. Classic CAH is a serious and life-threatening disease with no known novel therapies approved in approximately 50 years. In a 12-week Phase 2a proof-of-concept clinical trial, tildacerfont-treated patients suffering from classic CAH who had poor disease control despite being on standard of care therapy achieved approximately 80% reductions in hormones that are key indicators of poor disease control. Furthermore, 174 subjects across six clinical trials to date have been administered tildacerfont with no drug-related serious adverse events, or SAEs, reported.

We have initiated a placebo-controlled, double-blind Phase 2b clinical trial in adult patients with classic CAH with poor disease control and anticipate topline results in the fourth quarter of 2021. We anticipate initiating a second Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020 and anticipate topline results in the first half of 2022. Based on post-hoc analyses of our clinical data to date, we have chosen to target two distinct groups of classic CAH patients with either good disease control or poor disease control. These two groups, which together make up the entire classic CAH patient population, have differing disease challenges centered on excessive adrenal androgen levels or excessive glucocorticoid usage, both of which have the potential to be addressed by treatment with tildacerfont, if approved. We believe our strategy may enable us to observe clinically meaningful outcomes with fewer total patients studied. Additionally, we believe these two clinical trials will provide sufficient patient exposures for our registrational safety database. Assuming positive results in the glucocorticoid reduction trial, we plan to meet with the U.S. Food and Drug Administration, or FDA, and comparable foreign regulatory authorities in 2022 to discuss registration.

In addition, we plan to initiate a pediatric development program in classic CAH in the second half of 2021. We have received initial feedback from the FDA on our planned Phase 2 clinical trial of tildacerfont in children as young as five years of age with classic CAH, and we are also in discussions with the European Medicines Agency, or EMA, to gain their feedback. Beyond classic CAH, we believe tildacerfont has utility in a range of diseases where the underlying biology supports a need to reduce excess secretion of adrenocorticotropic hormone, or ACTH. We are committed to leveraging our deep scientific knowledge of the biology of rare endocrine disorders, the unique benefits of tildacerfont, and our commercial expertise to dramatically transform the lives of individuals living with these devastating disorders.

Classic CAH is an autosomal recessive disease, driven by a mutation in the gene that encodes an enzyme necessary for the synthesis of key adrenal hormones. In all classic CAH patients, the body is

not able to produce cortisol, leading to serious health consequences. In the absence of cortisol, patients can face adrenal crisis and death rapidly as a result of any stressing event. Physicians administer replacement steroid hormones to reduce the risk of adrenal crises and death; however, replacement alone is not sufficient to address all of the consequences associated with classic CAH.

The absence of cortisol alters the normal feedback cycle of the hypothalamic-pituitary-adrenal, or HPA, axis, and leads to excess secretion of ACTH, hyperplasia of the adrenal gland, and consequently high levels of endogenous androgen production. As a result, classic CAH patients suffer from premature puberty, impaired fertility, hirsutism, acne, the development of adrenal rest tumors, and an impaired quality of life, and additionally for females, virilized genitalia and menstrual irregularities. Currently, the only way to downregulate the production of excess androgens in classic CAH patients is to administer even higher doses of glucocorticoids, known as supraphysiologic glucocorticoid dosing. These elevated dose levels present specific side effects, including increased risks of developing diabetes, cardiovascular disease, stunted growth, osteoporosis, thin skin, gastrointestinal disorders, and decreased lifespan.

Due to the severity of the disease, most developed countries have established newborn screening programs to test for classic CAH at birth. Infants with classic CAH are generally initiated on glucocorticoid therapy at the time of diagnosis and lifelong disease management is required, with pediatric patients generally transitioning into the care of adult endocrinologists between the ages of 18 and 21. Due to the complexity of management of classic CAH, in the United States, patients are generally managed within specialty endocrinology clinics, and in the European Union, or EU, most countries have a small number of centers of excellence addressing the population. We estimate the total classic CAH populations are approximately 20,000 to 30,000 people in the United States and approximately 50,000 people in the EU, and, according to the National Organization for Rare Disorders, the estimated incidence of classic CAH in the United States and Europe is between one in 10,000 and one in 15,000 live births.

Tildacerfont is a potent and highly selective antagonist of the CRF1 receptor, which is the receptor for corticotropin-releasing factor, or CRF. CRF, which is secreted by the hypothalamus, is most abundantly expressed in the pituitary gland and in the neocortex, and is the primary regulator of the HPA axis. By blocking the CRF1 receptor, tildacerfont has the potential to address the uncontrolled cortisol feedback regulatory pathway in CAH, and in turn reduce the production of ACTH in the pituitary, limiting the amount of androgen produced downstream from the adrenal gland. We believe that by controlling excess adrenal androgens through an independent mechanism, tildacerfont could reduce the unwanted clinical symptoms associated with high androgen exposure. Tildacerfont use could also enable treating physicians to lower the supraphysiologic glucocorticoid doses given to classic CAH patients to near physiologic levels, thus reducing or avoiding the long-term and serious side effects associated with the chronic use of high dose glucocorticoids.

Tildacerfont has been evaluated in six clinical trials in which it has been generally well tolerated. No drug-related SAEs have been reported related to tildacerfont treatment. To date, we have completed two Phase 2 clinical trials in patients with classic CAH, a two-week proof-of-mechanism dose ranging clinical trial, and a 12-week proof-of-concept clinical trial, in which we observed that tildacerfont led to the decrease in the levels of a series of hormones associated with adrenal hyperplasia and androgen synthesis, both of which are key indicators of poor disease control. In our 12-week clinical trial, of patients with highly elevated hormones and androgens at baseline, 60% achieved normalization of ACTH, one subject at week two prior to discontinuation and two subjects during month three, and 40% achieved normalization of androstenedione, or A4, during month three. A4 is an androgen steroid routinely used as a biomarker of androgen synthesis by the adrenal gland.

Through our clinical trials completed to date, we have conducted post-hoc analyses of two distinct groups of classic CAH patients, both on stable standard-of-care glucocorticoids: those who have poor disease control, as evidenced by highly elevated hormones and androgens at baseline; and those who have good disease control, as evidenced by hormones and androgens that are close to or within the normal range at baseline. In patients with poor disease control, we believe that the dose of glucocorticoids being administered was insufficient on its own to suppress adrenal hyperplasia and androgen synthesis. Patients with poor disease control may be intolerant to higher glucocorticoid doses or unwilling to accept the negative consequences resulting from chronic use of high doses of glucocorticoids. In patients with poor disease control, the addition of tildacerfont provided a potential non-steroidal solution to control excess androgen synthesis. Patients receiving tildacerfont showed reduced levels of disease-driving hormones and androgen by a mean of approximately 80%, resulting in levels close to those found in healthy adults without any changes to the glucocorticoid dosing in these patients.

We observed that classic CAH patients in our clinical trials with good disease control upon trial enrollment were receiving glucocorticoid doses approximately 44% higher than those patients with poor disease control. Dosing of tildacerfont in patients with good disease control was well tolerated and did not lead to further suppression of adrenal function or androgen synthesis. In these patients, tildacerfont may be able to allow a significant reduction in glucocorticoid dosing while continuing to maintain normal levels of androgens. Based on the strength of our clinical results to date, we believe tildacerfont has the potential to offer improved clinical outcomes for both poor disease control and good disease control classic CAH patients.

We have initiated a double-blind, placebo-controlled Phase 2b clinical trial in adult patients with classic CAH who have poor disease control despite stable glucocorticoid dosing. The goals of this clinical trial are to: (i) assess the ability of three dose levels of tildacerfont to reduce the levels of disease associated hormones and androgens over a period of 12 weeks; (ii) assess the impact of dose-titration of tildacerfont to further improve these hormone and androgen levels over 24 weeks; (iii) assess clinical outcomes that result from hormone reductions over 52 weeks; and (iv) assess the long-term safety of tildacerfont over 52 weeks. We anticipate initiating a Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020 and anticipate topline results in the first half of 2022. The goals of this clinical trial are to: (i) evaluate the ability of tildacerfont to allow clinically meaningful reductions in glucocorticoid dosing over periods of 24 and 52 weeks while maintaining good disease control; (ii) assess the combined impact of tildacerfont administration and glucocorticoid reduction on improving clinical outcomes over 24 and 52 weeks; and (iii) assess the long-term safety of tildacerfont over 52 weeks. Based on analyses of our clinical data to date, we have chosen to target two distinct groups of classic CAH patients with either good disease control or poor disease control. These two groups, which together make up the entire classic CAH patient population, have differing disease challenges centered on excessive adrenal androgen levels or excessive glucocorticoid usage, both of which have the potential to be addressed by treatment with tildacerfont, if approved. We believe our strategy may enable us to observe clinically meaningful outcomes with fewer total patients studied.

We own worldwide development and commercialization rights for tildacerfont. We intend to build a highly specialized commercial organization to support the commercialization of tildacerfont, if approved, in the United States and Europe. Given a relatively small number of endocrinologists and specialists treat patients with classic CAH, we believe this market can be effectively addressed with a modest-sized targeted commercial sales force, alongside various high-touch patient initiatives. If tildacerfont is approved for additional indications, we plan to leverage our rare disease commercial infrastructure and expertise to efficiently address those patient populations. We may also either build a

commercial infrastructure or opportunistically seek strategic collaborations to benefit from the resources of biopharmaceutical companies specialized in either relevant disease areas or geographies.

We have developed and continue to expand our extensive patent portfolio for tildacerfont, covering composition of matter, method of synthesis, formulation, and use. We have also been granted orphan drug designation for tildacerfont for the treatment of classic CAH both in the United States and the EU. We have assembled a highly experienced team with broad capabilities in drug discovery, development, and commercialization. In aggregate, our team has contributed to the development and commercial launch of 28 products, including within the fields of endocrinology and rare diseases. Richard King, our Chief Executive Officer, previously served as Chief Operating Officer at Adamas Pharmaceuticals and President and Chief Executive Officer of AcelRx Pharmaceuticals. Prior to that, Mr. King served as President and Chief Operating Officer of Tercica, Inc., a company focused on developing and commercializing therapeutics for rare endocrine disorders, until its acquisition by Ipsen, S.A. Samir Gharib, our Chief Financial Officer, previously served as Chief Financial Officer at Stemedica Cell Technologies. Since our inception, we have raised approximately $116.0 million in equity financing from healthcare investors including Abingworth Bioventures, Aisling Capital, HealthCap, Novo Holdings, Omega Funds, RiverVest Venture Partners, Rock Springs Capital, Sands Capital, and Surveyor Capital (a Citadel company).

Our Development Plan for Tildacerfont

We are investigating tildacerfont in orphan indications where the underlying disease biology supports a need to reduce excess secretion of ACTH. We are currently in late-stage clinical development for tildacerfont in adult patients with classic CAH. We have initiated the first Phase 2b clinical trial in adult patients with classic CAH with poor disease control and anticipate topline results in the fourth quarter of 2021. We anticipate initiating a second Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020 and anticipate topline results in the first half of 2022. Based on analyses of our clinical data to date, we have chosen to target two distinct groups of classic CAH patients with either good disease control or poor disease control. These two groups, which together make up the entire classic CAH patient population, have differing disease challenges centered on excessive adrenal androgen levels or excessive glucocorticoid usage, both of which have the potential to be addressed by treatment with tildacerfont, if approved. We believe our strategy may enable us to observe clinically meaningful outcomes with fewer total patients studied. Additionally, we believe these two clinical trials will provide sufficient patient exposures for our registrational safety database. Assuming positive results in the glucocorticoid reduction trial, we plan to meet with the FDA and comparable foreign regulatory authorities in 2022 to discuss registration.

We also plan to investigate tildacerfont for the treatment of classic CAH in children as young as five years of age, and plan to initiate the clinical development program for tildacerfont in the pediatric classic CAH population in the second half of 2021. By leveraging our existing Phase 1 program, which includes safety, tolerability, and pharmacokinetics of tildacerfont, in addition to dose modelling to adapt the information from adults to children, we plan to initiate a Phase 2 clinical trial. We have received initial feedback from the FDA on our planned Phase 2 clinical trial, and we are also in discussions with the EMA to gain their feedback.

Polycystic ovary syndrome, or PCOS, is a hormonal disorder common among females of reproductive age affecting nearly five million females in the United States and approximately 115 million females worldwide. PCOS is characterized by elevated levels of androgens, cysts in the

ovaries, and irregular periods. We have identified a subpopulation of patients where elevated levels of adrenal androgens are the cause of disease. We believe that tildacerfont may present a novel mechanism to reduce ACTH and provide a therapeutic option for females with this rare form of PCOS, representing 3-5% of females with PCOS. We plan to file an investigational new drug application, or IND, to study tildacerfont in this patient population in the first half of 2021. By leveraging our existing Phase 1 program, which includes safety, tolerability, and pharmacokinetics of tildacerfont, subject to the clearance of our planned IND, we believe we will be able to initiate a Phase 2 proof-of-concept clinical trial in the second half of 2021.

The following table summarizes our development plan for tildacerfont:

Product Candidate	Indication	Status	Key Anticipated Milestone(s)
Tildacerfont	Adult Classic Congenital Adrenal Hyperplasia	▪ Initiated Phase 2b clinical trial (Study 203) to evaluate androgen reduction and clinical consequences in adult patients with classic CAH ▪ Expect to initiate Phase 2b clinical trial (Study 204) in Q3 2020 to evaluate glucocorticoid reduction and clinical consequences in adult patients with classic CAH	▪ Q4 2021: Study 203 topline results ▪ 1H 2022: Study 204 topline results
	Pediatric Classic Congenital Adrenal Hyperplasia	▪ Received initial FDA feedback on planned Phase 2 clinical trial in children as young as 5 years old	▪ 2H 2021: Initiate Phase 2 clinical trial*
	Polycystic Ovary Syndrome	▪ Developing clinical development plan in a subpopulation of females with a rare form of PCOS; planning Phase 2 proof-of-concept clinical trial	▪ 1H 2021: File IND ▪ 2H 2021: Initiate Phase 2 proof-of-concept clinical trial*

* Subject to clearance of the applicable IND.

Our Strategy

We are focused on discovering, developing and commercializing novel therapeutics to address rare endocrine disorders. Our goal is to transform the treatment paradigm for patients suffering from these chronic and potentially life-threatening diseases with high unmet medical need. The key tenets of our business strategy are:

- Complete clinical development for tildacerfont and seek regulatory approval for the treatment of adults with classic CAH.
- Advance tildacerfont through clinical development and seek regulatory approval for the treatment of children with classic CAH.
- Maximize the commercial potential of tildacerfont in classic CAH.
- Explore the potential of tildacerfont to bring therapeutic benefit to patients with other rare endocrine disorders.
- Evaluate strategic opportunities to expand our product candidate portfolio.

Risks Associated with Our Business

Investing in our common stock involves substantial risk. The risks described under the heading “Risk Factors” immediately following this summary may cause us to not realize the full benefits of our strengths or may cause us to be unable to successfully execute all or part of our strategy. Some of the more significant challenges include the following:

- We have a limited operating history, have incurred significant net losses since our inception, and anticipate that we will continue to incur significant net losses for the foreseeable future.
- We will need substantial additional financing to develop tildacerfont and any future product candidates and implement our operating plans. If we fail to obtain additional financing, we may be forced to delay, reduce or eliminate our product development programs or commercialization efforts.
- We currently depend entirely on the success of tildacerfont, which is our only product candidate. If we are unable to advance tildacerfont in clinical development, obtain regulatory approval, and ultimately commercialize tildacerfont, or experience significant delays in doing so, our business will be materially harmed.
- Our clinical trials may fail to adequately demonstrate the safety and efficacy of tildacerfont, which could prevent or delay regulatory approval and commercialization.
- Clinical drug development involves a lengthy and expensive process with uncertain outcomes, and results of earlier studies and trials may not be predictive of future trial results. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of tildacerfont and any future product candidates.
- Our business has been and could continue to be adversely affected by the evolving and ongoing COVID-19 global pandemic in regions where we or third parties on which we rely have significant manufacturing facilities, concentrations of clinical trial sites or other business operations. The COVID-19 pandemic could adversely affect our operations, as well as the business or operations of our manufacturers, clinical research organizations, or CROs, or other third parties with whom we conduct business.
- Tildacerfont is, and any future product candidates will be, subject to extensive regulation and compliance obligations, which are costly and time-consuming, and such regulation may cause unanticipated delays or prevent the receipt of the required approvals to commercialize tildacerfont and any future product candidates.
- We may not be successful in our efforts to expand our pipeline by identifying additional indications and formulations for which to investigate tildacerfont in the future. We may expend our limited resources to pursue a particular indication or formulation for tildacerfont and fail to capitalize on product candidates, indications or formulations that may be more profitable or for which there is a greater likelihood of success.
- We depend on intellectual property licensed from Eli Lilly and Company, or Lilly, the termination of which could result in the loss of significant rights, which would harm our business.
- If we are unable to obtain and maintain sufficient intellectual property protection for tildacerfont, any future product candidates, and other proprietary technologies we develop, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize tildacerfont, if approved, and any future product candidates, and other proprietary technologies if approved, may be adversely affected.

- We have identified a material weakness in our internal control over financial reporting and may identify material weaknesses in the future or otherwise fail to maintain proper and effective internal controls, which may impair our ability to produce accurate financial statements on a timely basis.

Implications of Being an Emerging Growth Company and Smaller Reporting Company

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. We may take advantage of certain exemptions from various public company reporting requirements, including being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure, not being required to have our internal control over financial reporting audited by our independent registered public accounting firm under Section 404 of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We may take advantage of these exemptions until the last day of the fiscal year ending after the fifth anniversary of this offering or until we are no longer an emerging growth company, whichever is earlier. We will cease to be an emerging growth company prior to the end of such five-year period if certain earlier events occur, including if we become a "large accelerated filer" as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, or the Exchange Act, our annual gross revenues exceed $1.07 billion or we issue more than $1.0 billion of non-convertible debt in any three-year period. In particular, in this prospectus, we have provided only two years of audited financial statements and have not included all of the executive compensation related information that would be required if we were not an emerging growth company, and we may elect to take advantage of other reduced reporting requirements in future filings. Accordingly, the information contained herein may be different than the information you receive from other public companies in which you hold stock.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of accounting standards that have different effective dates for public and private companies until those standards would otherwise apply to private companies. We have elected to use this extended transition period under the JOBS Act until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

We are also a "smaller reporting company" as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than $250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than $100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than $700.0 million measured on the last business day of our second fiscal quarter.

Corporate Information

We were initially formed as a limited liability company in Delaware in November 2014 under the name Spruce Biosciences LLC. In April 2016, Spruce Biosciences LLC converted into a Delaware corporation under the name Spruce Biosciences, Inc. Our principal executive offices are located at 2001 Junipero Serra Boulevard, Suite 640, Daly City, California 94014, and our telephone number is (415) 294-1687. Our website address is www.sprucebiosciences.com. Information contained in, or that can be accessed through, our website is not incorporated by reference into this prospectus.

The Offering

Common stock offered by us	shares.
Common stock to be outstanding after this offering	shares.
Option to purchase additional shares	We have granted the underwriters the option to purchase up to additional shares of our common stock. The underwriters can exercise this option at any time within 30 days after the date of this prospectus.
Use of proceeds	We estimate that the net proceeds from this offering will be approximately $ million (or approximately $ million if the underwriters' option to purchase up to additional shares of our common stock from us is exercised in full), after deducting underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds from this offering to fund the clinical development of tildacerfont and other ongoing research and development activities, commercial readiness of tildacerfont for adult patients with classic CAH, and the remainder for working capital and general corporate purposes. See the section titled "Use of Proceeds" for additional information.
Proposed Nasdaq Global Market symbol	"SPRB."
Risk factors	See the section titled "Risk Factors" beginning on page 13 and other information included in this prospectus for a discussion of factors you should consider carefully before deciding to invest in our common stock.

The number of shares of our common stock to be outstanding after this offering is based on 106,380,205 shares of common stock outstanding as of June 30, 2020, after giving effect to the issuance and sale of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020 and the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into 101,333,330 shares of common stock in connection with the closing of this offering, and excludes:

- 9,563,822 shares of our common stock issuable upon the exercise of outstanding stock options as of June 30, 2020, with a weighted-average exercise price of $0.21 per share;
- 5,149,000 shares issuable upon the exercise of outstanding stock options granted subsequent to June 30, 2020, with a weighted-average exercise price of $0.47 per share;
- 324,499 shares of our common stock issuable upon the exercise of a warrant outstanding as of June 30, 2020, with an exercise price of $0.22 per share;

- shares of our common stock reserved for future issuance under our 2020 Equity Incentive Plan, or our 2020 Plan, which will become effective once the registration statement of which this prospectus forms a part is declared effective, as well as any automatic annual increases in the number of shares of common stock reserved for issuance under our 2020 Plan and any shares underlying outstanding stock awards granted under our amended and restated 2016 Equity Incentive Plan, or our 2016 Plan, that expire or are repurchased, forfeited, cancelled or withheld, as more fully described in the section titled "Executive Compensation—Equity Incentive Plans"; and
- shares of our common stock reserved for issuance under our 2020 Employee Stock Purchase Plan, or ESPP, which will become effective once the registration statement of which this prospectus forms a part is declared effective, and any automatic annual increases in the number of shares of common stock reserved for future issuance under our ESPP.

In addition, unless we specifically state otherwise, the information in this prospectus assumes or gives effect to:

- the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020;
- the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of 101,333,330 shares of our common stock in connection with the closing of this offering;
- no exercise of the outstanding options or warrant described above;
- no exercise of the underwriters' option to purchase up to additional shares of common stock from us in this offering;
- an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus;
- a -for- reverse stock split of our common stock to be effected prior to the closing of this offering; and
- the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws immediately prior to the closing of this offering.

Summary Financial Data

The following tables set forth our summary financial data for the periods and as of the dates indicated. We derived our statements of operations data for the years ended December 31, 2018 and 2019 from our audited financial statements included elsewhere in this prospectus. We have derived the summary statements of operations data for the six months ended June 30, 2019 and 2020, and the summary balance sheet data as of June 30, 2020 from our unaudited interim condensed financial statements included elsewhere in this prospectus. The unaudited interim condensed financial statements were prepared on a basis consistent with our audited financial statements and include, in management's opinion, all adjustments, consisting only of normal recurring adjustments that we consider necessary for a fair presentation of the financial information set forth in those statements. Our historical results are not necessarily indicative of the results that may be expected in the future and our interim results are not necessarily indicative of our expected results for the year ending December 31, 2020. You should read the following summary financial data in conjunction with our financial statements and related notes included elsewhere in this prospectus and the information in the sections titled "Selected Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations."

	Year Ended December 31,		Six Months Ended June 30,	
	2018	2019	2019	2020
			(unaudited)	
Statements of Operations Data:	(in thousands, except share and per share amounts)			
Operating expenses:				
Research and development	$ 8,403	$ 10,817	$ 5,862	$ 10,272
General and administrative	1,569	2,290	1,547	1,250
Total operating expenses	9,972	13,107	7,409	11,522
Loss from operations	(9,972)	(13,107)	(7,409)	(11,522)
Interest expense	–	(65)	–	(166)
Other income, net	114	84	54	74
Net loss	$ (9,858)	$ (13,088)	$ (7,355)	$ (11,614)
Net loss per share, basic and diluted(1)	$ (2.01)	$ (2.62)	$ (1.47)	$ (2.32)
Weighted-average shares of common stock outstanding, basic and diluted(1)	4,912,955	5,000,000	5,000,000	5,013,908
Pro forma net loss per share, basic and diluted (unaudited)(1)		$ (0.41)		$ (0.19)
Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited)(1)		32,013,699		59,808,779

(1) See Note 12 to our annual financial statements and Note 9 to our interim condensed financial statements, each included elsewhere in this prospectus, for an explanation of the method used to calculate historical and pro forma net loss per share, basic and diluted, and the weighted-average number of shares of common stock used in the computation of the per share amounts.

	As of June 30, 2020		
	Actual	Pro Forma(1)	Pro Forma As Adjusted(2)(3)
		(unaudited)	
Balance Sheet Data:		(in thousands)	
Cash and cash equivalents	$ 36,601	$ 80,601	$
Working capital(4)	32,143	76,143	
Total assets	38,968	82,968	
Term loan, net of current portion	3,200	3,200	
Total liabilities	9,622	9,622	
Redeemable convertible preferred stock	71,461	–	
Accumulated deficit	(42,916)	(42,916)	
Total stockholders' equity (deficit)	(42,115)	73,346	

(1) Gives effect to (i) the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020 and our receipt of approximately $44.0 million in aggregate net proceeds therefrom, (ii) the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of 101,333,330 shares of common stock and the related reclassification of the carrying value of our redeemable convertible preferred stock to permanent equity in connection with the closing of this offering, and (iii) the filing and effectiveness of our amended and restated certificate of incorporation that will be in effect immediately prior to the closing of this offering.

(2) Gives effect to (i) the items described in footnote (1) above and (ii) the issuance and sale of shares of our common stock in this offering at the assumed initial public offering price of $ per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

(3) A $1.00 increase (decrease) in the assumed initial public offering price would increase (decrease) each of cash and cash equivalents, working capital, total assets and total stockholders' equity (deficit) by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, after deducting underwriting discounts and commissions. Similarly, each increase (decrease) of 1.0 million shares in the number of shares of common stock offered by us would increase (decrease) each of cash and cash equivalents, working capital, total assets, and total stockholders' equity (deficit) by $ million, and after deducting underwriting discounts and commissions.

(4) We define working capital as current assets less current liabilities. See our financial statements and related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus, including our financial statements and the related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" before deciding whether to invest in our common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our common stock could decline, and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risks Related to Our Business and Industry

We have a limited operating history, have incurred significant net losses since our inception, and anticipate that we will continue to incur significant net losses for the foreseeable future.

We are a late-stage biopharmaceutical company founded in 2014, and our operations to date have focused primarily on raising capital, establishing and protecting our intellectual property portfolio, organizing and staffing our company, business planning, and conducting preclinical and clinical development of, and manufacturing development for, our only product candidate, tildacerfont. Additionally, as an organization, we have not yet demonstrated an ability to successfully complete clinical development, obtain regulatory approvals, manufacture a commercial-scale product, or conduct sales and marketing activities necessary for successful commercialization. As we build our capabilities and expand our organization, we have not yet demonstrated an ability to overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the biopharmaceutical area. Consequently, any predictions about our future performance may not be as accurate as they would be if we had a history of successfully developing and commercializing biopharmaceutical products.

Investment in biopharmaceutical product development is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate effectiveness in the targeted indication or an acceptable safety profile, gain regulatory approval and become commercially viable. We have no products approved for commercial sale and have not generated any revenue to date, and we continue to incur significant research and development and other expenses related to our ongoing operations. As a result, we are not profitable and have incurred significant net losses since our inception. If tildacerfont is not successfully developed and approved in the United States or Europe, we may never generate any revenue. For the years ended December 31, 2018 and 2019, we reported a net loss of $9.9 million and $13.1 million, respectively, and for the six months ended June 30, 2020, we reported a net loss of $11.6 million. As of June 30, 2020, we had an accumulated deficit of $42.9 million.

We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase as we continue our clinical development of, and seek regulatory approvals for, tildacerfont and any future product candidates. We may encounter unforeseen expenses, difficulties, complications, delays, and other unknown factors that may adversely affect our business. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenues. Our prior net losses and expected future net losses have had and will continue to have an adverse effect on our stockholders' equity and working capital. Because of the numerous risks and uncertainties associated with drug development, we are unable to accurately predict the timing or amount of increased expenses, or when, if at all, we will be able to achieve profitability.

We will need substantial additional financing to develop tildacerfont and any future product candidates and implement our operating plan. If we fail to obtain additional financing, we may be forced to delay, reduce or eliminate our product development programs or commercialization efforts.

Our operations have consumed substantial amounts of cash since our inception. We expect to continue to spend substantial amounts to continue the clinical development of, and seek regulatory approval for, tildacerfont and any future product candidates. We will require significant additional amounts in order to prepare for commercialization, and, if approved, to launch and commercialize tildacerfont.

We estimate that the net proceeds from this offering will be approximately $ million, based on the assumed initial public offering price of $ per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us. We believe, based on our current operating plan, that such proceeds, together with our cash and cash equivalents as of June 30, 2020, and the net proceeds of approximately $44.0 million from the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020, will be sufficient to fund our operations for at least the next 12 months. In particular, we expect that the net proceeds from this offering will allow us to fund our two ongoing and planned Phase 2b clinical trials of tildacerfont in adult patients with classic CAH, new drug application, or NDA, enabling, and commercial readiness activities to market tildacerfont for adults with classic CAH in the United States and Europe, if approved, our research and development efforts for tildacerfont in children with classic CAH and other rare endocrine disorders, including in a subpopulation of females with a rare form of PCOS, as well as working capital and general corporate purposes.

However, changing circumstances may cause us to consume capital significantly faster than we currently anticipate, and we may need to spend more money than currently expected because of circumstances beyond our control. For example, as a result of the COVID-19 pandemic, we have amended our clinical trial protocols to enable remote visits to mitigate any potential impacts. As a result of this home health component, the overall costs of our Phase 2b clinical trials have increased and may continue to increase in the future.

We will require additional capital for the further development and commercialization of tildacerfont and any future product candidates and may need to raise additional funds sooner if we choose to expand more rapidly than we presently anticipate.

Additional funding may not be available on acceptable terms, or at all. As a result of the COVID-19 pandemic and actions taken to slow its spread, the global credit and financial markets have experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates, and uncertainty about economic stability. If the equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly or more dilutive. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back, or discontinue the development or commercialization of tildacerfont or other research and development initiatives. We also could be required to seek collaborators for tildacerfont and any future product candidates at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available or relinquish or license on unfavorable terms our rights to tildacerfont and any future product candidates in markets where we otherwise would seek to pursue development or commercialization ourselves.

Any of the above events could significantly harm our business, prospects, financial condition and results of operations and cause the price of our common stock to decline.

We currently depend entirely on the success of tildacerfont, which is our only product candidate. If we are unable to advance tildacerfont in clinical development, obtain regulatory approval, and ultimately commercialize tildacerfont, or experience significant delays in doing so, our business will be materially harmed.

We currently only have one product candidate, tildacerfont, and our business and future success depends entirely on our ability to develop, obtain regulatory approval for, and then successfully commercialize, tildacerfont, which is currently in clinical development for adult patients with classic CAH. This may make an investment in our company riskier than similar companies that have multiple product candidates in active development that may be able to better sustain failure of a lead product candidate. We have initiated a placebo-controlled, double-blind Phase 2b clinical trial in adult patients with classic CAH with poor disease control and anticipate topline results in the fourth quarter of 2021. We anticipate initiating a second Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020 and anticipate topline results in the first half of 2022. While we believe these two clinical trials will provide sufficient patient exposures for our registrational safety database, regulatory authorities may not agree and require us to initiate an additional trial or enroll additional patients. Assuming positive results in the glucocorticoid reduction trial, we plan to meet with the FDA and comparable foreign regulatory authorities in 2022 to discuss registration. We have received initial feedback from the FDA on our planned Phase 2 clinical trial of tildacerfont in children as young as five years of age with classic CAH, and we are also in discussions with the EMA to gain their feedback in order to initiate the clinical development program for tildacerfont in the pediatric classic CAH population in the second half of 2021. While we do not currently anticipate the global pandemic of COVID-19 to impact our projected milestones for these trials, the COVID-19 pandemic continues to evolve and any impacts on these projected milestones are highly uncertain and cannot be predicted with confidence.

The success of tildacerfont will depend on several factors, including the following:

- successful enrollment in our ongoing and planned clinical trials and completion of such clinical trials with favorable results;
- acceptance by the FDA and EMA of data from our ongoing and planned Phase 2b clinical trials in adult patients with classic CAH;
- demonstrating safety and efficacy to the satisfaction of applicable regulatory authorities;
- the outcome, timing, and cost of meeting regulatory requirements established by the FDA, EMA, and other comparable foreign regulatory authorities;
- receipt of marketing approvals from applicable regulatory authorities, including one or more NDAs from the FDA, and maintaining such approvals;
- establishing commercial manufacturing capabilities and receiving/importing commercial supplies approved by the FDA and other regulatory authorities from any future third-party manufacturer;
- establishing sales, marketing, and distribution capabilities and commercializing tildacerfont, if approved, whether alone or in collaboration with others;
- establishing and maintaining patent and trade secret protection and regulatory exclusivity for tildacerfont;
- maintaining an acceptable safety profile of tildacerfont following approval; and
- maintaining and growing an organization of people who can develop and, if approved, commercialize, market, and sell tildacerfont to physicians, patients, healthcare payors, and others in the medical community.

If we do not achieve one or more of these factors, many of which are beyond our control, in a timely manner or at all, we could experience significant delays or an inability to obtain regulatory approvals or commercialize tildacerfont.

Even if regulatory approvals are obtained, we may never be able to successfully commercialize tildacerfont. In addition, we will need to transition at some point from a company with a development focus to a company capable of supporting commercial activities. We may not be successful in such a transition. Accordingly, we may not be able to generate sufficient revenue through the sale of tildacerfont to continue our business.

Our clinical trials may fail to adequately demonstrate the safety and efficacy of tildacerfont, which could prevent or delay regulatory approval and commercialization.

Before obtaining regulatory approvals for the commercial sale of a product candidate, we must demonstrate through lengthy, complex and expensive preclinical testing and clinical trials that a product candidate is both safe and effective for use in each target indication. Clinical trials often fail to demonstrate safety and efficacy of the product candidate studied for the target indication. Most product candidates that commence clinical trials are never approved by regulatory authorities for commercialization. We are seeking to develop treatments for rare endocrine disorders for which there is limited clinical experience, and our two ongoing and planned Phase 2b clinical trials use novel endpoints that do not have regulatory precedent in CAH due to the lack of clinical trials in CAH, which add complexity to the conduct and analysis of data from our clinical trials and may delay or prevent regulatory approval. Additionally, any safety concerns observed in any one of our clinical trials in our targeted indications could limit the prospects for regulatory approval of tildacerfont in other indications.

Clinical drug development involves a lengthy and expensive process with uncertain outcomes, and results of earlier studies and trials may not be predictive of future trial results. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of tildacerfont and any future product candidates.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. A failure of one or more clinical trials can occur at any stage of testing. The results of preclinical studies and early clinical trials of tildacerfont may not be predictive of the results of later-stage clinical trials. However, product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through preclinical studies and initial clinical trials. For example, tildacerfont has not yet been evaluated in pediatric patients with classic CAH, and the results may not be similar to the results observed in clinical trials of adult patients. In addition, we intend to use doses in our two Phase 2b clinical trials that may not be safe or efficacious doses. As such, our hypotheses of efficacy may not show the desired clinical results. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or safety profiles, notwithstanding promising results in earlier trials. Moreover, preclinical and clinical data is often susceptible to varying interpretations and analyses. We may face significant setbacks as we conduct our two Phase 2b clinical trials in adult patients with classic CAH, which may delay or prevent regulatory approval of tildacerfont.

Further, if patients drop out of our clinical trials, miss scheduled doses or follow-up visits, or otherwise fail to follow clinical trial protocols, whether as a result of the COVID-19 pandemic, actions taken to slow the spread of COVID-19 or otherwise, the integrity of data from our clinical trials may be compromised or not accepted by the FDA or other regulatory authorities, which would represent a significant setback for the applicable program.

If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.

We may not be able to initiate or continue our clinical trials for tildacerfont and any future product candidates if we are unable to identify and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA and comparable foreign regulatory authorities. Patient enrollment, a significant factor in the timing of clinical trials, is affected by many factors including the size and nature

of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the clinical trial, the design of the clinical trial, competing clinical trials, and clinicians' and patients' perceptions as to the potential advantages of the product candidate being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating.

In particular, each indication for which we are evaluating tildacerfont is a rare endocrine disorder with limited patient populations from which to draw participants in clinical trials. For example, we estimate the total classic CAH populations are approximately 20,000 to 30,000 people in the United States and approximately 50,000 people in the EU. We will be required to identify and enroll a sufficient number of patients with the disorder under investigation for our clinical trials of tildacerfont. Potential patients may not be adequately diagnosed or identified with the disorders which we are targeting or may not meet the entry criteria for our clinical trials. Additionally, other pharmaceutical companies with more resources and greater experience in drug development and commercialization are targeting these same endocrine disorders and are recruiting clinical trial patients from these patient populations, which may delay or make it more difficult to fully enroll our clinical trials. Our inability to enroll a sufficient number of patients for any of our current or future clinical trials would result in significant delays or may require us to abandon one or more clinical trials altogether.

Our clinical trials have been, and may in the future be, affected by the COVID-19 pandemic. For example, the COVID-19 pandemic may impact patient enrollment in our two ongoing and planned Phase 2b clinical trials. In particular, some sites may pause enrollment to focus on, and direct resources to, COVID-19, while at other sites, patients may choose not to enroll or continue participating in the clinical trial as a result of the pandemic. In addition, patient visits to endocrinologists in the United States have slowed as a result of the COVID-19 pandemic. Further, according to the Centers for Disease Control and Prevention, people who have serious chronic medical conditions, including those such as classic CAH, are at higher risk of getting very sick from COVID-19. As a result, current or potential patients in our ongoing and planned clinical trials may choose to not enroll, not participate in follow-up clinical visits, or drop out of the trial as a precaution against contracting COVID-19. Further, some patients may not be able or willing to comply with clinical trial protocols if quarantines impede patient movement or interrupt healthcare services.

We are unable to predict with confidence the duration of such patient enrollment delays and difficulties, whether related to COVID-19 or otherwise. If patient enrollment is delayed for an extended period of time, our Phase 2b clinical trials could be delayed or otherwise adversely affected.

Any delays in the commencement or completion, or termination or suspension, of our clinical trials could result in increased costs to us, delay or limit our ability to generate revenue, and adversely affect our commercial prospects.

Before we can initiate clinical trials for tildacerfont or any future product candidates, we must submit the results of preclinical studies to the FDA, or comparable foreign regulatory authorities, along with other information, including information about chemistry, manufacturing and controls, and our proposed clinical trial protocol, as part of an IND or similar regulatory filing under which we must receive authorization to proceed with clinical development.

Before obtaining marketing approval from regulatory authorities for the sale of tildacerfont or any future product candidates, we must conduct extensive clinical trials to demonstrate the safety and efficacy of tildacerfont and any future product candidates in humans. Clinical testing is expensive, time-consuming, and uncertain as to outcome. In addition, we may rely in part on preclinical, clinical and quality data generated by CROs and other third parties for regulatory submissions for tildacerfont and any future product candidates. While we have or will have agreements governing these third parties' services, we have limited influence over their actual performance. If these third parties do not make data available to us, or, if applicable, do not make regulatory submissions in a timely manner, in each

case pursuant to our agreements with them, our development programs may be significantly delayed, and we may need to conduct additional clinical trials or collect additional data independently. In either case, our development costs would increase.

We do not know whether our current or any future clinical trials will begin on time or be completed on schedule, if at all. The commencement and completion of clinical trials can be delayed for a number of reasons, including delays related to:

- the FDA or comparable foreign regulatory authorities' failure to accept our proposed manufacturing processes and suppliers and/or requirement to provide additional information regarding our manufacturing processes before providing marketing authorization;
- obtaining regulatory authorizations to commence a clinical trial or reaching a consensus with regulatory authorities on clinical trial design or implementation;
- any failure or delay in reaching an agreement with CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites;
- obtaining approval from one or more institutional review boards, or IRBs, or Ethics Committees, or ECs;
- IRBs or ECs refusing to approve, suspending or terminating the clinical trial at an investigational site, precluding enrollment of additional subjects, or withdrawing their approval of the clinical trial;
- changes to clinical trial protocols;
- selection of clinical endpoints that require prolonged periods of clinical observation or analysis of the resulting data;
- sites deviating from clinical trial protocol or dropping out of a clinical trial;
- manufacturing sufficient quantities of tildacerfont or any future product candidates or obtaining sufficient quantities of combination therapies for use in clinical trials;
- subjects failing to enroll or remain in our trials at the rate we expect, or failing to return for post-treatment follow-up;
- subjects choosing an alternative treatment for the indications for which we are developing tildacerfont and any future product candidates, or participating in competing clinical trials;
- lack of adequate funding to continue the clinical trial;
- subjects experiencing severe or unexpected drug-related adverse effects;
- occurrence of SAEs in clinical trials of the same class of agents conducted by other companies;
- a facility manufacturing tildacerfont or any of its components being ordered by the FDA or comparable foreign regulatory authorities to temporarily or permanently shut down due to violations of current good manufacturing practice, or cGMP, regulations or other applicable requirements, or infections or cross-contaminations of tildacerfont in the manufacturing process;
- any changes to our manufacturing process, suppliers or formulation that may be necessary or desired;
- third-party vendors not performing manufacturing and distribution services in a timely manner or to sufficient quality standards;
- third-party clinical investigators losing the licenses or permits necessary to perform our clinical trials, not performing our clinical trials on our anticipated schedule or consistent with the clinical trial protocol, good clinical practice, or GCP, or other regulatory requirements;
- third-party contractors not performing data collection or analysis in a timely or accurate manner;

- third-party contractors becoming debarred or suspended or otherwise penalized by the FDA or other government or regulatory authorities for violations of regulatory requirements, in which case we may need to find a substitute contractor, and we may not be able to use some or all of the data produced by such contractors in support of our marketing applications; or
- the impacts of the COVID-19 pandemic on our ongoing and planned clinical trials.

In addition, disruptions caused by the COVID-19 pandemic may increase the likelihood that we encounter such difficulties or delays in initiating, enrolling, conducting, or completing our planned and ongoing clinical trials. We could also encounter delays if a clinical trial is suspended or terminated by us, by the IRBs or ECs of the institutions in which such trials are being conducted or by the FDA or comparable foreign regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or comparable foreign regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. In addition, changes in regulatory requirements and policies may occur, and we have amended, and may need to further amend, clinical trial protocols to comply with these changes. Amendments may require us to resubmit our clinical trial protocols to IRBs for reexamination, which may impact the costs, timing, or successful completion of a clinical trial.

Further, conducting clinical trials in foreign countries, which we plan to do for tildacerfont and may do for any future product candidates, presents additional risks that may delay completion of our clinical trials. These risks include the failure of enrolled patients in foreign countries to adhere to clinical protocol as a result of differences in healthcare services or cultural customs, managing additional administrative burdens associated with foreign regulatory schemes, as well as political and economic risks relevant to such foreign countries.

Moreover, principal investigators for our clinical trials may serve and have served as scientific advisors or consultants to us from time to time and receive compensation in connection with such services. Under certain circumstances, we may be required to report some of these relationships to the FDA or comparable foreign regulatory authorities. The FDA or comparable foreign regulatory authority may conclude that a financial relationship between us and a principal investigator has created a conflict of interest or otherwise affected interpretation of the trial. The FDA or comparable foreign regulatory authority may therefore question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized. This could result in a delay in approval, or rejection, of our marketing applications by the FDA or comparable foreign regulatory authority, as the case may be, and may ultimately lead to the denial of marketing approval of tildacerfont.

If we experience delays in the completion of, or termination of, any clinical trial of tildacerfont or any future product candidates, the commercial prospect of tildacerfont or any future product candidates will be harmed, and our ability to generate product revenue will be delayed. Moreover, any delays in completing our clinical trials will increase our costs, slow down our product candidate development and approval process and jeopardize our ability to commence product sales and generate revenue. In addition, many of the factors that cause, or lead to, termination or suspension of, or a delay in the commencement or completion of, clinical trials may also ultimately lead to the denial of regulatory approval of tildacerfont or any future product candidates. Further, delays to our clinical trials that occur as a result could shorten any period during which we may have the exclusive right to commercialize tildacerfont and our competitors may be able to bring products to market before we do, and the commercial viability of tildacerfont could be significantly reduced. Any of these occurrences may harm our business, financial condition, and prospects significantly.

Tildacerfont is, and any future product candidates will be, subject to extensive regulation and compliance obligations, which are costly and time-consuming, and such regulation may cause unanticipated delays or prevent the receipt of the required approvals to commercialize tildacerfont and any future product candidates.

The clinical development, manufacturing, labeling, storage, record-keeping, advertising, promotion, import, export, marketing, and distribution of tildacerfont is subject to extensive regulation by the FDA in the United States and by comparable foreign regulatory authorities in foreign markets. In the United States, we are not permitted to market tildacerfont and any future product candidates until we receive regulatory approval from the FDA. The process of obtaining regulatory approval is expensive, often takes many years following the commencement of clinical trials and can vary substantially based upon the type, complexity and novelty of the product candidates involved, as well as the target indications and patient population. Approval policies or regulations may change, and the FDA has substantial discretion in the drug approval process, including the ability to delay, limit or deny approval of a product candidate for many reasons. Despite the time and expense invested in clinical development of product candidates, regulatory approval is never guaranteed. Neither we nor any future collaborator is permitted to market tildacerfont and any future product candidates in the United States until we receive approval of an NDA from the FDA. We have not previously submitted an NDA to the FDA, or similar drug approval filings to comparable foreign authorities.

Prior to obtaining approval to commercialize a product candidate in the United States or in foreign markets, we must demonstrate with substantial evidence from adequate and well-controlled clinical trials, and to the satisfaction of the FDA or comparable foreign regulatory authorities, that such product candidates are safe and effective for their intended uses. Results from nonclinical studies and clinical trials can be interpreted in different ways. Even if we believe the nonclinical or clinical data for tildacerfont are promising, such data may not be sufficient to support approval by the FDA and comparable foreign regulatory authorities. The FDA or comparable foreign regulatory authorities, as the case may be, may also require us to conduct additional preclinical studies or clinical trials for tildacerfont and any future product candidates either prior to or post-approval, or may object to elements of our clinical development program.

Tildacerfont and any future product candidates could fail to receive regulatory approval for many reasons, including the following:

- serious and unexpected drug-related side effects may be experienced by participants in our clinical trials or by people using drugs similar to tildacerfont and any future product candidates;
- the population studied in the clinical trial may not be sufficiently broad or representative to assure safety in the full population for which we seek approval;
- the FDA or comparable foreign regulatory authorities may not accept clinical data from trials which are conducted at clinical facilities or in countries where the standard of care is potentially different from that of the United States;
- we may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that a product candidate is safe and effective for any of its proposed indications;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- we may be unable to demonstrate that a product candidate’s clinical and other benefits outweigh its safety risks;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data from preclinical studies or clinical trials;
- the data collected from clinical trials of tildacerfont and any future product candidates may not be sufficient to satisfy the FDA or comparable foreign regulatory authorities to support the

submission of an NDA or other comparable submissions in foreign jurisdictions or to obtain regulatory approval in the United States or elsewhere, requiring, in the case of adult patients with classic CAH, additional clinical trials beyond our two ongoing and planned Phase 2b clinical trials prior to any such approval;

- the FDA or comparable foreign regulatory authorities may fail to approve the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies; and
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

Any of the above events could prevent us from achieving market approval of tildacerfont or any future product candidates and could substantially increase the costs of commercializing tildacerfont or any future product candidates. The demand for tildacerfont or any future product candidates could also be negatively impacted by any adverse effects of a competitor's product or treatment.

Of the large number of drugs in development, only a small percentage successfully complete the FDA or foreign regulatory approval processes and are commercialized. The lengthy approval process as well as the unpredictability of future clinical trial results may result in our failing to obtain regulatory approval to market tildacerfont and any future product candidates, which would significantly harm our business, financial condition, results of operations and prospects.

Even if we eventually complete clinical trials and receive approval of an NDA or foreign marketing application for tildacerfont and any future product candidates, the FDA or comparable foreign regulatory authority may grant approval contingent on the performance of costly additional clinical trials, including Phase 4 clinical trials, and/or the implementation of a risk evaluation and mitigation strategy, or REMS, which may be required to ensure safe use of the drug after approval. The FDA or the comparable foreign regulatory authority also may approve a product candidate for a more limited indication or patient population than we originally requested, and the FDA or comparable foreign regulatory authority may not approve the labeling that we believe is necessary or desirable for the successful commercialization of a product. Any delay in obtaining, or inability to obtain, applicable regulatory approval would delay or prevent commercialization of that product candidate and would materially adversely impact our business and prospects.

Our business has been and could continue to be adversely affected by the evolving and ongoing COVID-19 global pandemic in regions where we or third parties on which we rely have significant manufacturing facilities, concentrations of clinical trial sites or other business operations. The COVID-19 pandemic could adversely affect our operations, as well as the business or operations of our manufacturers, CROs, or other third parties with whom we conduct business.

Our business has been and could continue to be adversely affected by the evolving COVID-19 pandemic, which was declared by the World Health Organization as a global pandemic. As COVID-19 continues to spread, we may experience ongoing disruptions that could severely impact our business and clinical trials, including:

- delays or difficulties in enrolling patients in our clinical trials;
- delays or difficulties in clinical site initiation, including difficulties in recruiting clinical site; investigators and clinical site staff;
- delays in clinical sites receiving the supplies and materials needed to conduct our clinical trials, including interruption in global shipping that may affect the transport of clinical trial materials;
- changes in local regulations as part of a response to the COVID-19 outbreak which may require us to change the ways in which our clinical trials are conducted, which may result in unexpected costs, or to discontinue the clinical trials altogether;

- diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of our clinical trials;
- interruption of key clinical trial activities, such as clinical trial site monitoring, due to limitations on travel imposed or recommended by federal or state governments, employers and others, or interruption of clinical trial subject visits and study procedures, the occurrence of which could affect the integrity of clinical trial data;
- interruptions or delays in the operations of the FDA or other regulatory authorities, which may impact review and approval timelines;
- risk that participants enrolled in our clinical trials will acquire COVID-19 while the clinical trial is ongoing, which could impact the results of the clinical trial, including by increasing the number of observed adverse events;
- refusal of the FDA to accept data from clinical trials in affected geographies; and
- increased costs relating to mitigating the impact of COVID-19 on any of the foregoing factors.

These and other disruptions in our operations and the global economy could negatively impact our business, operating results and financial condition.

Our clinical trials have been, and may in the future be, affected by the COVID-19 pandemic. For example, the COVID-19 pandemic may impact patient enrollment in our two ongoing and planned Phase 2b clinical trials. In particular, some sites may pause enrollment to focus on, and direct resources to, COVID-19, while at other sites, patients may choose not to enroll or continue participating in the clinical trial as a result of the pandemic. In addition, patient visits to endocrinologists in the United States have slowed as a result of the COVID-19 pandemic. Further, according to the Centers for Disease Control and Prevention, people who have serious chronic medical conditions, including those such as classic CAH, are at higher risk of getting very sick from COVID-19. As a result, current or potential patients in our ongoing and planned clinical trials may choose to not enroll, not participate in follow-up clinical visits, or drop out of the trial as a precaution against contracting COVID-19. Further, some patients may not be able or willing to comply with clinical trial protocols if quarantines impede patient movement or interrupts healthcare services.

If patient enrollment is delayed for an extended period of time, our ongoing and planned clinical trials could be delayed or otherwise adversely affected. Similarly, our ability to recruit and retain principal investigators and site staff who, as healthcare providers, may have heightened exposure to COVID-19, may be adversely impacted.

In addition, ongoing or planned clinical trials may also be impacted by interruptions or delays in the operations of the FDA and comparable foreign regulatory agencies. For example, we and our CROs have also made certain adjustments to the operation of our trials in an effort to ensure the monitoring and safety of patients and minimize risks to trial integrity during the pandemic in accordance with the guidance issued by the FDA on March 18, 2020 and updated on April 2, 2020, and may need to make further adjustments in the future. For example, we have amended our clinical trial protocols to enable remote visits to mitigate any potential impacts as a result of the COVID-19 pandemic. As a result of this home health component, the overall costs of our Phase 2b clinical trials have increased and may continue to increase in the future. Many of these adjustments are new and untested, may not be effective, may affect the integrity of data collected, and may have unforeseen effects on the progress and completion of our clinical trials and the findings from such clinical trials.

In addition, we may encounter a shortage in supplies of, or in delays in shipping, our study drug or other components of the clinical trial vital for successful conduct of the trial. For example, in our two ongoing and planned Phase 2b clinical trials, patients will continue to use their steroid regimen for the

duration of the clinical trial. In particular, we have experienced a shortage of supply of hydrocortisone as a result of the COVID-19 pandemic, which if continued indefinitely, could adversely affect the timing and ultimately success of our clinical trials. Further, the successful conduct of our clinical trials depend on retrieving laboratory data from patients. Any failure by the laboratories with which we work to send us such data could impair the progress of such clinical trials. These events could delay our clinical trials, increase the cost of completing our clinical trials, and negatively impact the integrity, reliability, or robustness of the data from our clinical trials.

In addition, quarantines, shelter-in-place, and similar government orders, or the perception that such orders, shutdowns, or other restrictions on the conduct of business operations could occur, related to COVID-19 or other infectious diseases could impact personnel at our CROs or third-party manufacturing facilities upon which we rely, or the availability or cost of materials, which could disrupt the supply chain for tildacerfont. To the extent our suppliers and service providers are unable to comply with their obligations under our agreements with them or they are otherwise unable to deliver or are delayed in delivering goods and services to us due to the COVID-19 pandemic, our ability to continue meeting clinical supply demand for tildacerfont or otherwise advancing development of tildacerfont may become impaired.

The spread of COVID-19 and actions taken to reduce its spread may also materially affect us economically. While the potential economic impact brought by, and the duration of, the COVID-19 pandemic may be difficult to assess or predict, there could be a significant disruption of global financial markets, reducing our ability to access capital, which could in the future negatively affect our liquidity and financial position. In addition, the trading prices for other companies have been highly volatile as a result of the COVID-19 pandemic. As a result, we may face difficulties raising capital through sales of our common stock or such sales may be on unfavorable terms.

COVID-19 and actions taken to reduce its spread continue to evolve. The extent to which COVID-19 may impede the development of tildacerfont, reduce the productivity of our employees, disrupt our supply chains, delay our clinical trials, reduce our access to capital or limit our business development activities, will depend on future developments, which are highly uncertain and cannot be predicted with confidence.

In addition, to the extent the ongoing COVID-19 pandemic adversely affects our business and results of operations, it may also have the effect of heightening many of the other risks and uncertainties described in this “Risk Factors” section.

Interim, topline, and preliminary data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publicly disclose interim, topline, or preliminary data from our clinical trials, which is based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or trial. We also make assumptions, estimations, calculations, and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the interim, topline, or preliminary results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Interim, topline, and preliminary data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, such data should be viewed with caution until the final data are available. From time to time, we may also disclose interim data from our clinical trials. Interim, topline, and preliminary data from clinical trials that we may complete are subject to the risk that one or more of the clinical outcomes may materially

change as patient enrollment continues and more patient data become available. Adverse differences between preliminary, interim or topline data and final data could significantly harm our business prospects.

Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions, or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability, or commercialization of the particular product candidate or product and our company in general. In addition, the information we choose to publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine is the material or otherwise appropriate information to include in our disclosure, and any information we determine not to disclose may ultimately be deemed significant with respect to future decisions, conclusions, views, activities or otherwise regarding a particular product, product candidate, or our business. If the interim, topline, or preliminary data that we report differ from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to obtain approval for, and commercialize, our tildacerfont and any future product candidates may be harmed, which could harm our business, operating results, prospects, or financial condition.

If the market opportunities for tildacerfont and any future product candidates are smaller than we believe they are, our future revenue may be adversely affected, and our business may suffer.

If the size of the market opportunities in each of our target indications for tildacerfont and any future product candidates is smaller than we anticipate, we may not be able to achieve profitability and growth. We focus our clinical development of tildacerfont on treatments for rare endocrine disorders with relatively small patient populations. For example, we believe that tildacerfont has the potential to bring therapeutic benefit to patients suffering from endocrine disorders where the underlying disease biology supports a need to reduce excess secretion of ACTH, including, but not limited to, non-classic CAH in adults and a subpopulation of females with a rare form of PCOS. Given the relatively small number of patients who have the disorders that we are targeting and intend to target with tildacerfont, it is critical to our ability to grow and become profitable that we continue to successfully identify patients with these rare endocrine disorders. In particular, we anticipate that tildacerfont would be applicable in use for only a small subpopulation of females with PCOS, those with primary adrenal androgen excess, representing 3-5% of females with PCOS, and the identification of such females may be difficult. In addition, our estimates of the patient populations for our target indications have been derived from a variety of sources, including the scientific literature, surveys of clinics, patient foundations, and market research, and may prove to be incorrect. Further, new studies may change the estimated incidence or prevalence of these disorders. The number of patients may turn out to be lower than expected. The effort to identify patients with diseases we seek to treat is in early stages, and we cannot accurately predict the number of patients for whom treatment might be possible. For example, while classic CAH is usually detected at birth through required newborn screening programs in most developed countries, new patients may become increasingly difficult to identify or gain access to, which would adversely affect our results of operations and our business. In addition, the potentially addressable patient population for classic CAH may be limited or may not be amenable to treatment with tildacerfont, if approved. Further, even if we obtain significant market share for tildacerfont in classic CAH, we may never achieve profitability despite obtaining such significant market share, as other pharmaceutical companies with more resources and greater experience in drug development and commercialization are targeting this same endocrine disorder.

We may not be successful in our efforts to expand our pipeline by identifying additional indications and formulations for which to investigate tildacerfont in the future. We may expend our limited resources to pursue a particular indication or formulation for tildacerfont and fail to capitalize on product candidates, indications or formulations that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we are focused on specific indications and formulations for tildacerfont. As a result, we may fail to generate additional clinical development opportunities for tildacerfont for a number of reasons, including, tildacerfont may in certain indications, on further study, be shown to have harmful side effects, limited to no efficacy, or other characteristics that suggest it is unlikely to receive marketing approval and achieve market acceptance in such additional indications.

We plan to conduct several clinical trials for tildacerfont in parallel over the next several years, including multiple clinical trials in adult and pediatric patients with classic CAH, which may make our decision as to which indication to focus on more difficult. As a result, we may forgo or delay pursuit of opportunities with other indications that could have had greater commercial potential or likelihood of success. In addition, we plan to explore the use of tildacerfont in patients with pediatric classic CAH, adult patients with non-classic CAH and a subpopulation of females with a rare form of PCOS. However, we may focus on or pursue one or more of our target indications over other potential indications and such development efforts may not be successful, which would cause us to delay the clinical development and approval of tildacerfont. Furthermore, research programs to identify additional indications for tildacerfont require substantial technical, financial, and human resources. We may also pursue additional formulations for tildacerfont, including transitioning from a powder-in-capsule to a tablet formulation. However, we may not successfully develop these additional formulations for chemistry-related, stability-related, or other reasons. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs for specific indications may not yield any commercially viable products.

Additionally, we may pursue additional in-licenses or acquisitions of development-stage assets or programs, which entails additional risk to us. Identifying, selecting and acquiring promising product candidates requires substantial technical, financial, and human resources expertise. Efforts to do so may not result in the actual acquisition or license of a particular product candidate, potentially resulting in a diversion of our management's time and the expenditure of our resources with no resulting benefit. For example, if we are unable to identify programs that ultimately result in approved products, we may spend material amounts of our capital and other resources evaluating, acquiring and developing products that ultimately do not provide a return on our investment.

Obtaining and maintaining regulatory approval for a product candidate in one jurisdiction does not mean that we will be successful in obtaining regulatory approval for that product candidate in other jurisdictions.

Obtaining and maintaining regulatory approval for a product candidate in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction, while a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. For example, even if the FDA grants marketing approval for a product candidate, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion of the product candidate in those countries. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from, and greater than, those in the United States, including additional preclinical studies or clinical trials as clinical trials conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the United States, a product candidate

must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for tildacerfont is also subject to approval.

We expect to submit a Marketing Authorization Application, or MAA, to the EMA for approval of tildacerfont in the EU for the treatment of CAH. As with the FDA, obtaining approval of an MAA from the EMA is a similarly lengthy and expensive process and the EMA has its own procedures for approval for product candidates. Regulatory authorities in jurisdictions outside of the United States and the EU also have requirements for approval for product candidates with which we must comply prior to marketing in those jurisdictions. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of tildacerfont in certain countries. If we fail to comply with the regulatory requirements in international markets and/or receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of tildacerfont will be harmed, which would adversely affect our business, prospects, financial condition and results of operations.

We currently have no marketing and sales organization and have no experience in marketing products. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell tildacerfont and any future product candidates, we may not be able to generate product revenues.

We currently do not have a commercial organization for the marketing, sales and distribution of pharmaceutical products. To commercialize tildacerfont and any future product candidates, we must build our marketing, sales, distribution, managerial and other non-technical capabilities or make arrangements with third parties to perform these services. We intend to build a highly specialized commercial organization to support the commercialization of tildacerfont, if approved, in the United States and Europe.

The establishment and development of our own sales force or the establishment of a contract sales force to market tildacerfont and any future product candidates will be expensive and time-consuming and could delay any commercial launch. Moreover, we may not be able to successfully develop this capability. We will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain marketing and sales personnel. We also face competition in our search for third parties to assist us with the sales and marketing efforts of tildacerfont. To the extent we rely on third parties to commercialize tildacerfont, if approved, we may have little or no control over the marketing and sales efforts of such third parties and our revenues from product sales may be lower than if we had commercialized tildacerfont and any future product candidates ourselves. In the event we are unable to develop our own marketing and sales force or collaborate with a third-party marketing and sales organization, we would not be able to commercialize tildacerfont or any future product candidates.

Use of tildacerfont or any future product candidates could be associated with side effects, adverse events or other properties that could delay or prevent regulatory approval or result in significant negative consequences following marketing approval, if any.

As is the case with biopharmaceuticals generally, it is likely that there may be side effects and adverse events associated with the use of tildacerfont and any future product candidates. Results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics. Undesirable side effects caused by tildacerfont and any future product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other comparable foreign authorities. For example, although tildacerfont has been assessed in six clinical trials in which it has been well tolerated with no drug-related SAEs, in our proof-of-concept, dose-escalating Phase 2a clinical trial in adults with classic CAH, one patient experienced a grade one liver-

related SAE after 14 days of treatment at 1,000mg once daily. This patient had elevated levels of alanine transaminase, or ALT, between five and nine times upper limit of normal, or ULN, elevations in aspartate aminotransferase, or AST, less than five times ULN, and no increases in bilirubin. The event resolved on its own without additional medical intervention. No cases of liver enzyme elevations were observed in any patient receiving total daily doses of 600mg. If drug-related SAEs are observed, our trials could be suspended or terminated and the FDA or comparable foreign regulatory authorities could order us to cease further development of or deny approval for tildacerfont for any or all targeted indications. The drug-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition, and prospects significantly.

Furthermore, only adults have been treated with tildacerfont, and the safety profile in pediatric patients is unknown and may be different than that observed in previous clinical trials. Results of our trials could reveal a high and unacceptable severity and prevalence of side effects.

Additionally, if tildacerfont and any future product candidates receive marketing approval, and we or others later identify undesirable side effects caused by such product candidate, a number of potentially significant negative consequences could result, including:

- we may be forced to suspend marketing of that product, or decide to remove the product form the marketplace;
- regulatory authorities may withdraw approvals or change their approvals of such product;
- regulatory authorities may require additional warnings on the label or limit access of that product to selective specialized centers with additional safety reporting and with requirements that patients be geographically close to these centers for all or part of their treatment;
- we may be required to create a medication guide outlining the risks of such side effects for distribution to patients;
- we may be required to change the way the product is administered;
- we could be subject to fines, injunctions, or the imposition of criminal or civil penalties, or to sued and held liable for harm caused to subjects or patients;
- we could be sued and held liable for harm caused to patients; and
- the product may become less competitive, and our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of tildacerfont and any future product candidates, if approved, and could significantly harm our business, results of operations and prospects.

If we receive regulatory approval for tildacerfont and any future product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with any product.

Any regulatory approvals that we receive may be subject to limitations on the approved indicated uses for which the product may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including post-market studies or clinical trials, and surveillance to monitor safety and effectiveness. The FDA may also require us to adopt a REMS to ensure that the benefits of treatment with such product candidate outweigh the risks for each potential patient, which may include, among other things, a communication plan to health care practitioners, patient education, extensive patient monitoring, or distribution systems and processes that are highly controlled, restrictive and more costly than what is typical for the industry. We or our collaborators may also be required to adopt a REMS or engage in similar actions, such as patient education, certification

of health care professionals, or specific monitoring, if we or others later identify undesirable side effects caused by any product that we develop alone or with collaborators.

In addition, if the FDA or a comparable foreign regulatory authority approves a product candidate, the manufacturing, quality control, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export, and recordkeeping for the approved product will be subject to extensive and ongoing regulatory requirements. The FDA also requires submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMP requirements and GCP for any clinical trials that we conduct post-approval. Later discovery of previously unknown problems with a product candidate, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- issue warning letters or untitled letters;
- mandate modifications to promotional materials or require us to provide corrective information to healthcare practitioners, or require other restrictions on the labeling or marketing of such products;
- require us to enter into a consent decree, which can include imposition of various fines, reimbursements for inspection costs, required due dates for specific actions and penalties for noncompliance;
- seek an injunction or impose civil or criminal penalties or monetary fines;
- suspend, withdraw or modify regulatory approval;
- suspend or modify any ongoing clinical trials;
- refuse to approve pending applications or supplements to applications filed by us;
- suspend or impose restrictions on operations, including costly new manufacturing requirements; or
- seize or detain products, refuse to permit the import or export of products, or require us to initiate a product recall.

The occurrence of any event or penalty described above may inhibit our ability to commercialize tildacerfont and any future product candidates and generate revenue and could require us to expend significant time and resources in response and could generate negative publicity.

Advertising and promotion of any product candidate that obtains approval in the United States will be heavily scrutinized by the FDA, the U.S. Federal Trade Commission, the Department of Justice, or the DOJ, the Office of Inspector General of the U.S. Department of Health and Human Services, or HHS, state attorneys general, members of the U.S. Congress, and the public. Additionally, advertising and promotion of any product candidate that obtains approval outside of the United States will be heavily scrutinized by comparable foreign entities and stakeholders. Violations, including actual or alleged promotion of our products for unapproved or off-label uses, are subject to enforcement letters, inquiries, and investigations, and civil and criminal sanctions by the FDA, DOJ, or comparable foreign bodies. Any actual or alleged failure to comply with labeling and promotion requirements may result in fines, warning letters, mandates to corrective information to healthcare practitioners, injunctions, or civil or criminal penalties.

The FDA's and other regulatory authorities' policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval for tildacerfont and any future product candidates. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability, which would adversely affect our business, prospects, financial condition and results of operations.

Changes in funding for the FDA and other government agencies could hinder their ability to hire and retain key leadership and other personnel, or otherwise prevent new products and services from being developed or commercialized in a timely manner, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory, and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, including for 35 days beginning on December 22, 2018, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical FDA employees and stop critical activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Separately, in response to the global COVID-19 pandemic, on March 10, 2020, the FDA announced its intention to postpone most foreign inspections of manufacturing facilities and products through April 2020, and subsequently, on March 18, 2020, the FDA announced its intention to temporarily postpone routine surveillance inspections of domestic manufacturing facilities. On July 10, 2020, the FDA announced its intention to restart routine pre-announced surveillance inspections of domestic manufacturing facilities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs, or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Even if we obtain regulatory approval for tildacerfont and any future product candidates, tildacerfont and any future product candidates may not gain market acceptance among physicians, patients, healthcare payors and others in the medical community.

Tildacerfont and any future product candidates may not be commercially successful. The commercial success of tildacerfont or any future product candidates, if approved, will depend significantly on the broad adoption and use of such product by physicians and patients for approved indications. The degree of market acceptance of tildacerfont or any future products, if approved, will depend on a number of factors, including:

- the clinical indications for which such product candidate is approved;
- physicians and patients considering the product as a safe and effective treatment;
- the potential and perceived advantages of the product over alternative treatments;
- the prevalence and severity of any side effects;
- product labeling or product insert requirements of the FDA or other regulatory authorities;
- limitations or warnings contained in the labeling approved by the FDA or other regulatory authorities;
- the timing of market introduction of the product as well as competitive products;
- the cost of treatment in relation to alternative treatments;

- the availability of coverage and adequate reimbursement by third-party payors and government authorities;
- the willingness of patients to pay out-of-pocket in the absence of coverage and adequate reimbursement by third-party payors and government authorities;
- relative convenience and ease of administration, including as compared to alternative treatments and competitive therapies; and
- the effectiveness of our sales and marketing efforts and those of any collaboration or distribution partner on whom we rely for sales in foreign jurisdictions.

If tildacerfont and any future product candidate is approved but fails to achieve market acceptance among physicians, patients, healthcare payors or others in the medical community, we will not be able to generate significant revenues, which would have a material adverse effect on our business, prospects, financial condition and results of operations. In addition, even if tildacerfont and any future product candidate gains acceptance, the markets for the treatment of patients with our target indications may not be as significant as we estimate.

If tildacerfont and any future product candidate is approved for marketing, and we are found to have improperly promoted off-label uses, or if physicians prescribe or use tildacerfont and any future product candidates off-label, we may become subject to prohibitions on the sale or marketing of tildacerfont and any future product candidates, significant fines, penalties, sanctions, or product liability claims, and our image and reputation within the industry and marketplace could be harmed.

The FDA, DOJ, and comparable foreign authorities strictly regulate the marketing and promotional claims that are made about pharmaceutical products, such as tildacerfont, if approved. In particular, a product may not be promoted for uses or indications that are not approved by the FDA or comparable foreign authorities as reflected in the product's approved labeling. However, if we receive marketing approval for tildacerfont and any future product candidates, physicians can prescribe such product to their patients in a manner that is inconsistent with the approved label. If we are found to have promoted such off-label uses, we may receive warning letters from the FDA and comparable foreign authorities and become subject to significant liability, which would materially harm our business. The federal government has levied large civil and criminal fines against companies for alleged improper promotion and has enjoined several companies from engaging in off-label promotion. If we become the target of such an investigation or prosecution based on our marketing and promotional practices, we could face similar sanctions, which would materially harm our business. In addition, management's attention could be diverted from our business operations, significant legal expenses could be incurred, and our reputation could be damaged. The FDA and other governmental authorities have also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed in order to resolve enforcement actions. If we are deemed by the FDA, DOJ, or other governmental authorities to have engaged in the promotion of tildacerfont or any future product candidate for off-label use, we could be subject to certain prohibitions or other restrictions on the sale or marketing and other operations or significant fines and penalties, and the imposition of these sanctions could also affect our reputation and position within the industry.

Coverage and reimbursement may be limited or unavailable in certain market segments for tildacerfont and any future product candidates, which could make it difficult for us to sell tildacerfont and any future product candidates profitably.

Successful sales of tildacerfont and any future product candidates, if approved, depend on the availability of coverage and adequate reimbursement from third-party payors. Patients who are prescribed medicine for the treatment of their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their prescription drugs. Coverage and adequate

reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance, and we may not obtain such coverage or adequate reimbursement. Moreover, we focus our clinical development of tildacerfont on treatments for rare endocrine disorders with relatively small patient populations. As a result, we must rely on obtaining appropriate coverage and reimbursement for these populations.

Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which drugs they will cover and the amount of reimbursement they will provide. Reimbursement by a third-party payor may depend upon a number of factors, including, but not limited to, the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective, and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Obtaining coverage and reimbursement approval for a product from a government or other third-party payor is a time-consuming and costly process that could require us to provide to the payor supporting scientific, clinical and cost-effectiveness data for the use of our products. We may not be able to provide data sufficient to obtain coverage and adequate reimbursement. Assuming we obtain coverage for a given product, the resulting reimbursement payment rates might not be adequate or may require co-payments that patients find unacceptably high. Patients are unlikely to use tildacerfont or any future product candidate unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost. Additionally, the reimbursement rates and coverage amounts may be affected by the approved label for tildacerfont or any future product candidate. If coverage and reimbursement of our future products are unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, we may be unable to achieve or sustain profitability.

In addition, the market for tildacerfont and any future product candidates will depend significantly on access to third-party payors' drug formularies or lists of medications for which third-party payors provide coverage and reimbursement. The industry competition to be included in such formularies often leads to downward pricing pressures on pharmaceutical companies. Also, third-party payors may refuse to include a particular branded drug in their formularies or otherwise restrict patient access through formulary controls or otherwise to a branded drug when a less costly generic equivalent or other alternative is available.

In the United States, no uniform policy of coverage and reimbursement for drug products exists among third-party payors. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement rates, but also have their own methods and approval process apart from Medicare determinations. Therefore, coverage and reimbursement for drug products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of tildacerfont and any future product candidates to each payor separately, with no assurance that coverage and adequate reimbursement will be obtained.

We intend to seek approval to market tildacerfont in the United States and in selected foreign jurisdictions. If we obtain approval in one or more foreign jurisdictions for tildacerfont, we will be subject to rules and regulations in those jurisdictions. In some foreign countries, particularly those in the EU, the pricing of prescription pharmaceuticals and biologics is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after obtaining

marketing approval for a drug candidate. In addition, market acceptance and sales of a product will depend significantly on the availability of coverage and adequate reimbursement from third-party payors for a product and may be affected by existing and future health care reform measures.

Recently enacted legislation, future legislation and healthcare reform measures may increase the difficulty and cost for us to obtain marketing approval for and commercialize tildacerfont and any future product candidates and may affect the prices we may set.

In the United States and some foreign jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes to the healthcare system, including cost-containment measures that may reduce or limit coverage and reimbursement for newly approved drugs and affect our ability to profitably sell any product candidates for which we obtain marketing approval. In particular, there have been and continue to be a number of initiatives at the U.S. federal and state levels that seek to reduce healthcare costs and improve the quality of healthcare.

For example, in March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the Affordable Care Act, was enacted in the United States. Among the provisions of the Affordable Care Act of importance to our potential product candidates, the Affordable Care Act: established an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents; expands eligibility criteria for Medicaid programs; increased the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program; created a new Medicare Part D coverage gap discount program; established a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in and conduct comparative clinical effectiveness research, along with funding for such research; and established a Center for Medicare and Medicaid Innovation at the Centers for Medicare & Medicaid Services, or CMS, to test innovative payment and service delivery models to lower Medicare and Medicaid spending.

There have been judicial and Congressional challenges to certain aspects of the Affordable Care Act, as well as efforts by the Trump administration to repeal or replace certain aspects of the Affordable Care Act and we expect such challenges and amendments to continue. By way of example, the Tax Cuts and Jobs Act of 2017, or the Tax Act, was signed into law, which included a provision which repealed, effective January 1, 2019, the tax-based shared responsibility payment imposed by the Affordable Care Act on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the “individual mandate.” On December 14, 2018, a Texas U.S. District Court Judge ruled that the Affordable Care Act is unconstitutional in its entirety because the “individual mandate” was repealed by Congress as part of the Tax Act. Additionally, on December 18, 2019, the U.S. Court of Appeals for the 5th Circuit ruled that that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the Affordable Care Act are invalid as well. On March 2, 2020, the United States Supreme Court granted the petitions for writs of certiorari to review this case, although it is unclear when or how the Supreme Court will rule. It is also unclear how other efforts to challenge, repeal, or replace the Affordable Care Act will impact the Affordable Care Act and our business.

In addition, other legislative changes have been proposed and adopted since the Affordable Care Act was enacted. On August 2, 2011, the Budget Control Act of 2011 was signed into law, which, among other things, included reductions to Medicare payments to providers of 2% per fiscal year, which went into effect on April 1, 2013 and, due to subsequent legislative amendments to the statute, will remain in effect through 2030, with the exception of a temporary suspension from May 1, 2020 through December 31, 2020, unless additional Congressional action is taken. In addition, on January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Further, there has been heightened governmental scrutiny in the United States of pharmaceutical pricing practices in light of the rising cost of prescription drugs. Such scrutiny has resulted in several recent congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products.

At the federal level, the Trump administration's budget proposal for fiscal year 2021 includes a $135 billion allowance to support legislative proposals seeking to reduce drug prices, increase competition, lower out-of-pocket drug costs for patients, and increase patient access to lower-cost generic and biosimilar drugs. On March 10, 2020, the Trump administration sent "principles" for drug pricing to Congress, calling for legislation that would, among other things, cap Medicare Part D beneficiary out-of-pocket pharmacy expenses, provide an option to cap Medicare Part D beneficiary monthly out-of-pocket expenses, and place limits on pharmaceutical price increases. Additionally, on May 11, 2018, President Trump previously laid out his administration's "Blueprint" to lower drug prices and reduce out of pocket costs of drugs that contained proposals to increase drug manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products, and reduce the out of pocket costs of drug products paid by consumers. The HHS has solicited feedback on some of these measures and, at the same time, has implemented others under its existing authority. For example, in May 2019, CMS issued a final rule to allow Medicare Advantage Plans the option of using step therapy for Part B drugs beginning January 1, 2020. This final rule codified CMS's policy change that was effective January 1, 2019. On July 24, 2020, the Trump administration announced four executive orders in an attempt to implement several of the Administration's proposals that: (i) would tie Medicare Part B drug prices to international drug prices; (ii) directs HHS to finalize the Canadian drug importation proposed rule previously issued by HHS and makes other changes allowing for personal importation of drugs from Canada; (iii) directs HHS to finalize the rulemaking process on eliminating the safe harbor protections under the Anti-Kickback Statute that covers rebates and discounts for plans, pharmacies, and pharmaceutical benefit managers and instead, protect the application of discounts at the patients' point of sale; and (iv) reduces costs of insulin and epipens to patients of federally qualified health centers. Although some of these and other proposals may require additional authorization to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs.

At the state level, individual states in the United States have also increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions could harm our business, results of operations, financial condition, and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for tildacerfont, if approved, or put pressure on our product pricing, which could negatively affect our business, results of operations, financial condition, and prospects.

Moreover, on May 30, 2018, the Trickett Wendler, Frank Mongiello, Jordan McLinn, and Matthew Bellina Right to Try Act of 2017, or Right to Try Act, was signed into law. The law, among other things, provides a federal framework for patients to access certain investigational new drug products that have completed a Phase 1 clinical trial. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA approval under the FDA expanded access

program. There is no obligation for a drug manufacturer to make its drug products available to eligible patients as a result of the Right to Try Act.

We expect that the Affordable Care Act, these new laws and other healthcare reform measures that may be adopted in the future may result in additional reductions in Medicare and other healthcare funding, more rigorous coverage criteria, new payment methodologies and additional downward pressure on the price that we receive for any approved product. In addition, it is possible that additional governmental action will be taken to address the COVID-19 pandemic. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from third-party payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize tildacerfont, if approved.

A variety of risks associated with marketing tildacerfont and any future product candidates internationally could materially adversely affect our business.

We plan to seek regulatory approval for tildacerfont and any future product candidates internationally and, accordingly, we expect that we will be subject to additional risks related to operating in foreign countries if we obtain the necessary approvals, including:

- differing regulatory requirements in foreign countries, including differing reimbursement, pricing and insurance regimes;
- the potential for so-called parallel importing, which is what happens when a local seller, faced with high or higher local prices, opts to import goods from a foreign market (with low or lower prices) rather than buying them locally;
- unexpected changes in tariffs, trade barriers, price and exchange controls, and other regulatory requirements;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration, and labor laws for employees living or traveling internationally;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenues, and other obligations incident to doing business in another country;
- difficulties staffing and managing foreign operations;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- potential liability under the U.S. Foreign Corrupt Practices Act of 1977, or FCPA, or comparable foreign regulations;
- challenges enforcing our contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities internationally; and
- business interruptions resulting from geo-political actions, including war and terrorism.

These and other risks associated with our international operations may materially adversely affect our ability to attain or maintain profitable operations.

If we fail to develop and commercialize additional product candidates, we may be unable to grow our business.

We may seek to in-license or acquire development-stage product candidates in endocrine disorders that have the potential to complement our existing portfolio. If we decide to pursue the development and commercialization of any additional product candidates, we may be required to invest significant resources to acquire or in-license the rights to such product candidates or to conduct drug discovery activities. We do not currently have the necessary drug discovery personnel or expertise adequate to discover and develop an additional product candidate on our own. Any other product candidates will require additional, time-consuming development efforts, and significant financial resources, prior to commercial sale, including preclinical studies, extensive clinical trials, and approval by the FDA and applicable foreign regulatory authorities. All product candidates are prone to the risks of failure that are inherent in pharmaceutical product development, including the possibility that the product candidate will not be shown to be sufficiently safe and/or effective for approval by regulatory authorities. In addition, we may not be able to acquire, discover, or develop any additional product candidates, and any additional product candidates we may develop may not be approved, manufactured, or produced economically, successfully commercialized or widely accepted in the marketplace, or be more effective than other commercially available alternatives. Research programs to identify new product candidates require substantial technical, financial, and human resources whether or not we ultimately identify any candidates. If we are unable to develop or commercialize any other product candidates, our business and prospects will suffer.

If we fail to develop tildacerfont for additional indications, our commercial opportunity may be limited.

One of our strategies is to pursue clinical development of tildacerfont in additional endocrine disorders, including, but not limited to, pediatric classic CAH, non-classic CAH in adults, and a subpopulation of females with a rare form of PCOS. The endocrine disorders we are targeting are all rare disorders and, as a result, the market size for the treatment of patients with such disorders is limited. In addition, CRF1 receptor antagonism may not be an appropriate or effective mechanism in indications where disease biology supports a need to reduce ACTH. Due to these factors, our ability to grow revenue may be dependent on our ability to successfully develop and commercialize tildacerfont for the treatment of additional indications. Developing, obtaining regulatory approval and commercializing tildacerfont for additional indications will require substantial additional funding beyond the net proceeds of this offering and is prone to the risks of failure inherent in drug development. We may not be able to successfully advance any of these indications through the development process. Even if we receive regulatory approval to market tildacerfont for the treatment of any of these additional indications, any such additional indications may not be successfully commercialized, widely accepted in the marketplace, or more effective than other commercially available alternatives. If we are unable to successfully develop and commercialize tildacerfont for these additional indications, our commercial opportunity may be limited.

We face significant competition from other biotechnology and pharmaceutical companies, and our operating results will suffer if we fail to compete effectively.

The biopharmaceutical industry is characterized by intense competition and rapid innovation. Although we believe that we hold a leading position in our focus on rare endocrine disorders, our competitors may be able to develop other compounds or drugs that are able to achieve similar or better results. Our potential competitors include major multinational pharmaceutical companies, established biotechnology companies, specialty pharmaceutical companies and universities and other research institutions. Many of our competitors have substantially greater financial, technical and other resources, such as larger research and development staff and experienced marketing and manufacturing organizations and well-established sales forces. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large, established

companies. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in our competitors. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. Our competitors may succeed in developing, acquiring or licensing on an exclusive basis drug products that are more effective or less costly than tildacerfont. We believe the key competitive factors that will affect the development and commercial success of tildacerfont are efficacy, safety and tolerability profile, reliability, convenience of dosing, price and reimbursement.

Although classic CAH is part of the newborn screening program in most developed countries, there are no known novel therapies that have been approved in the last 50 years. We are aware of three other companies actively developing treatments for patients with classic CAH. Neurocrine Biosciences, Inc., or Neurocrine, is developing a CRF1 receptor antagonist and has completed a two-week Phase 2 clinical trial in adults with classic CAH. Neurocrine has initiated a Phase 2 clinical trial in a pediatric classic CAH population and a registrational trial for adult patients with classic CAH. BridgeBio Pharma, Inc. plans to evaluate a gene therapy program to treat classic CAH and is currently in pre-clinical development. In addition, Crinetics Pharmaceuticals, Inc. is in pre-clinical development for an oral nonpeptide therapeutic for hyperinsulinism and diseases of ACTH excess, including CAH, and Millendo Therapeutics, Inc., or Millendo, was developing nevanimibe, an ACAT1 inhibitor, for potential use in classic CAH. In the second quarter of 2020, Millendo announced its decision to discontinue development of nevanimibe for this indication.

In addition, while tildacerfont ultimately seeks to significantly reduce steroid use for patients with classic CAH, patients will continue use of their steroid regimen. As high doses of corticosteroids are the current standard of care for the treatment of classic CAH, in the United States alone, there are more than two dozen companies manufacturing steroid-based products. One such company is Diurnal Group PLC, or Diurnal, which is developing an exogenous cortisol treatment with a modified release intended to more closely match the physiological release profile of cortisol but recently announced a failed Phase 3 clinical trial and placed its United States development activities on hold. Diurnal submitted a MAA to the EMA in December of 2019.

Our commercial potential could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient, or are less expensive than products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market or make our development more complicated. We believe the key competitive factors affecting the success of tildacerfont are likely to be efficacy, safety, and convenience.

Even though we have obtained orphan drug designation for tildacerfont for the treatment of classic CAH, we may not be able to obtain or maintain the benefits associated with orphan drug status, including market exclusivity.

Regulatory authorities in some jurisdictions, including the United States and the EU, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act, the FDA may designate a drug as an orphan drug if it is intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 people in the United States, or a patient population of greater than 200,000 people in the United States, but for which there is no reasonable expectation that the cost of developing the drug will be recovered from sales in the United States. In the EU, the EMA Committee for Orphan Medicinal Products grants orphan drug designation to promote the development of products that are intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition affecting not more than five in 10,000 people in the EU.

In December 2017, the FDA granted orphan drug status to tildacerfont for the treatment of patients with classic CAH in the United States. We also received orphan drug status for tildacerfont for the treatment of patients with classic CAH in the EU in January 2017. Generally, if a drug with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the drug may be entitled to a period of marketing exclusivity, which precludes the FDA or the EMA from approving another marketing application for the same drug for that time period. Another drug may receive marketing approval prior to tildacerfont. The applicable period is seven years in the United States and ten years in the EU, which may be extended by six months and two years, respectively, in the case of product candidates that have complied with the respective regulatory agency's agreed upon pediatric investigation plan. The exclusivity period in the EU can be reduced to six years if a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified. Orphan drug exclusivity may be lost if the FDA or EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition. In addition, even after a drug is granted orphan exclusivity and approved, the FDA and the EMA can subsequently approve another drug for the same condition before the expiration of the seven-year (or ten-year in the EU) exclusivity period if the FDA or EMA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care. In the EU, the EMA may deny marketing approval for a product candidate if it determines such product candidate is structurally similar to an approved product for the same indication. In addition, if an orphan designated product receives marketing approval for an indication broader than or different from what is designated, such product may not be entitled to orphan exclusivity. Even though the FDA has granted orphan drug designation to tildacerfont for the treatment of classic CAH, if we receive approval for tildacerfont for a modified or different indication, our current orphan designations may not provide us with exclusivity.

Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process. Also, regulatory approval for any product candidate may be withdrawn, and other product candidates may obtain approval before us and receive orphan drug exclusivity, which could block us from entering the market.

Even if we obtain orphan drug exclusivity for tildacerfont, that exclusivity may not effectively protect us from competition because different drugs can be approved for the same condition before the expiration of the orphan drug exclusivity period.

We may form or seek strategic alliances or enter into additional licensing arrangements in the future, and we may not realize the benefits of such alliances or licensing arrangements.

We may form or seek strategic alliances, create joint ventures or collaborations or enter into additional licensing arrangements with third parties that we believe will complement or augment our development and commercialization efforts with respect to tildacerfont and any future product candidates that we may develop. We intend to establish commercial partnerships outside of the United States and selected foreign markets. Any of these relationships may require us to incur non-recurring and other charges, increase our near-and long-term expenditures, issue securities that dilute our existing stockholders, or disrupt our management and business. In addition, we face significant competition in seeking appropriate strategic partners and the negotiation process is time-consuming and complex. If we license products or businesses, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture. Following a strategic transaction or license, we may not achieve the revenues or cash flows that justifies such transaction. Any delays in entering into new strategic partnership agreements related to tildacerfont could delay the development and commercialization of tildacerfont in certain geographies for certain indications, which would harm our business prospects, financial condition and results of operations.

Our failure to successfully in-license, acquire, develop, and market additional product candidates or approved products would impair our ability to grow our business.

Although a substantial amount of our efforts are focused on the clinical development, potential regulatory approval and commercialization of tildacerfont, a key element of our long-term strategy is to in-license, acquire, develop, market, and commercialize a portfolio of products to treat patients with endocrine disorders. Because we do not have the necessary internal research and development capabilities, unless we build such capabilities internally, we will be dependent upon pharmaceutical companies, academic scientists, and other researchers to sell or license products or technology to us. The success of this strategy depends partly upon our ability to identify and select promising biopharmaceutical product candidates and products, negotiate licensing or acquisition agreements with their current owners, and finance these arrangements. The process of proposing, negotiating, and implementing a license or acquisition of a product candidate or approved product is lengthy and complex. Other companies, including some with substantially greater financial, marketing, sales, and other resources, may compete with us for the license or acquisition of product candidates and approved products. We have limited resources to identify and execute the acquisition or in-licensing of third-party products, businesses, and technologies and integrate them into our current infrastructure. Moreover, we may devote resources to potential acquisitions or licensing opportunities that are never completed, or we may fail to realize the anticipated benefits of such efforts. We may not be able to acquire the rights to additional product candidates on terms that we find acceptable, or at all. Further, any product candidate that we acquire may require additional development efforts prior to commercial sale, including preclinical or clinical testing and approval by the FDA, the EMA and other similar regulatory authorities. All product candidates are prone to risks of failure during biopharmaceutical product development, including the possibility that a product candidate will not be shown to be sufficiently safe and effective for approval by regulatory authorities. In addition, any approved products that we acquire may not be manufactured or sold profitably or achieve market acceptance.

We are highly dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to compete in the highly competitive biotechnology and pharmaceuticals industries depends upon our ability to attract and retain highly qualified managerial, scientific, and medical personnel. We are highly dependent on our management, scientific, and medical personnel. The loss of the services of any of our executive officers or other key employees and our inability to find suitable replacements could potentially harm our business, prospects, financial condition or results of operations.

We conduct our operations in Daly City, California. This region serves as the headquarters to many other biopharmaceutical companies and many academic and research institutions. Competition for skilled personnel in our market is intense and may limit our ability to hire and retain highly qualified personnel on acceptable terms or at all.

To induce valuable employees to remain at our company, in addition to salary and cash incentives, we have provided stock options that vest over time. The value to employees of stock options that vest over time may be significantly affected by movements in our stock price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies. Despite our efforts to retain valuable employees, members of our management, scientific, and development teams may terminate their employment with us on short notice. Although we have employment agreements and/or offer letters with our key employees, these arrangements provide for at-will employment, which means that any of our employees could leave our employment at any time, with or without notice. We do not maintain “key man” insurance policies on the lives of these individuals or the lives of any of our other employees. Our success also depends on our ability to continue to attract,

retain and motivate highly skilled junior, mid-level, and senior managers as well as junior, mid-level, and senior scientific and medical personnel.

Many of the other biotechnology and pharmaceutical companies that we compete against for qualified personnel have greater financial and other resources, different risk profiles, and a longer history in the industry than we do. They may also provide more diverse opportunities and better chances for career advancement. Some of these characteristics are more appealing to high quality candidates than what we can offer. If we are unable to continue to attract and retain high quality personnel, the rate and success at which we can discover, develop and commercialize product candidates will be limited.

We will need to grow the size of our organization, and we may experience difficulties in managing this growth.

As of June 30, 2020, we had 15 employees, all of whom are full-time. As our development and commercialization plans and strategies develop, and as we transition into operating as a public company, we expect to need additional development, managerial, operational, financial, sales, marketing, and other personnel. Future growth would impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining, and motivating additional employees;
- managing our internal development efforts effectively, including the clinical and regulatory review process for tildacerfont and any future product candidates, while complying with our contractual obligations to contractors and other third parties; and
- improving our operational, financial and management controls, reporting systems and procedures.

In addition, we initiated enrollment in our ongoing placebo-controlled, double-blind Phase 2b clinical trial in adult patients with classic CAH with poor disease control, and we anticipate initiating a second Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020. Our future financial performance and our ability to commercialize tildacerfont will depend, in part, on our ability to effectively manage any future growth, and our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing these growth activities. To date, we have used the services of outside vendors to perform tasks including clinical trial management, manufacturing, statistics and analysis, regulatory affairs, formulation development, and other drug development functions. Our growth strategy may also entail expanding our group of contractors or consultants to implement these tasks going forward. Because we rely on numerous consultants, effectively outsourcing many key functions of our business, we will need to be able to effectively manage these consultants to ensure that they successfully carry out their contractual obligations and meet expected deadlines. However, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by consultants is compromised for any reason, our clinical trials may be extended, delayed, or terminated, and we may not be able to obtain regulatory approval for tildacerfont and any future product candidates or otherwise advance our business. We may not be able to manage our existing consultants or find other competent outside contractors and consultants on economically reasonable terms, or at all. If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, we may not be able to successfully implement the tasks necessary to further develop and commercialize tildacerfont and any future product candidates and, accordingly, may not achieve our research, development and commercialization goals.

Our indebtedness to Silicon Valley Bank may limit our flexibility in operating our business and adversely affect our financial health and competitive position, and our obligations to Silicon Valley Bank are secured by substantially all of our assets, excluding our intellectual property assets. If we default on these obligations, Silicon Valley Bank could foreclose on our assets.

In September 2019, we entered into a Loan and Security Agreement, or the Loan Agreement, with Silicon Valley Bank, providing for a term loan, or the Term Loan. In April 2020, we entered into a deferral agreement with Silicon Valley Bank, or the Deferral Agreement, whereby we and Silicon Valley Bank agreed to extend the repayment dates of all monthly payments of principal due and the maturity date with respect to the Term Loan by six months. As of June 30, 2020, we had $4.5 million outstanding under the Loan Agreement.

All obligations under the Term Loan are secured by a first priority lien on substantially all of our assets, excluding intellectual property assets. We have agreed with Silicon Valley Bank not to encumber our intellectual property assets without its prior written consent unless a security interest in the underlying intellectual property is necessary to have a security interest in the accounts and proceeds that are part of the assets securing the Term Loan, in which case our intellectual property shall automatically be included within the assets securing the Term Loan. As a result, if we default on any of our obligations under the Loan Agreement, Silicon Valley Bank could foreclose on its security interest and liquidate some or all of the collateral, which would harm our business, financial condition and results of operations and could require us to reduce or cease operations.

In order to service this indebtedness and any additional indebtedness we may incur in the future, we need to generate cash from our operating activities. Our ability to generate cash is subject, in part, to our ability to successfully execute our business strategy, as well as general economic, financial, competitive, regulatory, and other factors beyond our control. Our business may not be able to generate sufficient cash flow from operations, and future borrowings or other financings may not be available to us in an amount sufficient to enable us to service our indebtedness and fund our other liquidity needs. To the extent we are required to use cash from operations or the proceeds of any future financing to service our indebtedness instead of funding working capital, capital expenditures or other general corporate purposes, we will be less able to plan for, or react to, changes in our business, industry, and in the economy generally. This could place us at a competitive disadvantage compared to our competitors that have less indebtedness.

The Loan Agreement contains certain covenants that limit our ability to engage in certain transactions that may be in our long-term best interest, including entering into a change in control transaction. While we have not previously breached and are currently in compliance with the covenants contained in the Loan Agreement, we may breach these covenants in the future. Our ability to comply with these covenants may be affected by events and factors beyond our control. In the event that we breach one or more covenants, Silicon Valley Bank may choose to declare an event of default and require that we immediately repay all amounts outstanding under the Loan Agreement, terminate any commitment to extend further credit and foreclose on the collateral. The occurrence of any of these events could have a material adverse effect on our business, financial condition and results of operations.

For a more detailed description of the terms of the Loan Agreement, see the section titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Loan Agreement” and Note 4 to our annual financial statements and Note 4 to our interim condensed financial statements, each included elsewhere in this prospectus.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.

We may seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and alliances, and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a stockholder. The incurrence of indebtedness would result in increased fixed payment obligations and could involve certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights, and other operating restrictions that could adversely impact our ability to conduct our business. If we raise additional funds through strategic partnerships and alliances and licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies or current or future product candidates, or grant licenses on terms unfavorable to us.

Business disruptions could seriously harm our future revenues and financial condition and increase our costs and expenses.

Our operations, and those of our CROs and other contractors and consultants, could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or man-made disasters or business interruptions, for which we are predominantly self-insured. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses. We rely on third-party manufacturers to produce tildacerfont. Our ability to obtain clinical supplies of tildacerfont and any future product candidates could be disrupted if the operations of these suppliers are affected by a man-made or natural disaster or other business interruption. Our corporate headquarters is located in California near major earthquake faults and fire zones. The ultimate impact on us, our suppliers and our general infrastructure of being located near major earthquake faults and fire zones and being consolidated in certain geographical areas is unknown, but our operations and financial condition could suffer in the event of a major earthquake, fire or other natural disaster.

Our employees, independent contractors, principal investigators, CROs, consultants, strategic partners, and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk that employees, independent contractors, principal investigators, CROs, consultants, and vendors may engage in fraudulent or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or disclosure of unauthorized activities to us that violates: (i) the rules of the FDA and other similar foreign regulatory bodies, including those rules that require the reporting of true, complete, and accurate information to the FDA and other similar foreign regulatory bodies; (ii) manufacturing standards; (iii) healthcare fraud and abuse laws in the United States and similar foreign fraudulent misconduct laws or (iv) laws that require the true, complete, and accurate reporting of our financial information or data. These laws may impact, among other things, our current activities with principal investigators and research subjects, as well as proposed and future sales, marketing, and education programs. In particular, the promotion, sales, and marketing of healthcare items and services, as well as certain business arrangements in the healthcare industry, are subject to extensive laws designed to prevent fraud, kickbacks, self-dealing, and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, structuring and commission(s), certain customer incentive programs, and other business arrangements generally. Activities subject to these laws also involve the improper use of information obtained in the course of patient recruitment for clinical trials.

If we obtain regulatory approval for tildacerfont and begin commercializing those products in the United States and in Europe, our potential exposure under such laws will increase significantly, and our

costs associated with compliance with such laws are also likely to increase. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant civil, criminal and administrative penalties, damages, disgorgement, monetary fines, imprisonment, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, additional reporting requirements and/or oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, contractual damages, reputational harm, diminished profits and future earnings, and curtailment of our operations.

Our relationships with customers, physicians and third-party payors may be subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, health information privacy and security laws, and other healthcare laws and regulations. If we or our employees, independent contractors, consultants, commercial partners, or vendors violate these laws, we could face substantial penalties.

Our relationships with customers, physicians, and third-party payors may be subject, directly or indirectly, to federal and state healthcare fraud and abuse laws, false claims laws, health information privacy and security laws, and other healthcare laws and regulations. These laws may impact, among other things, our clinical research program, as well as our proposed and future sales, marketing, and education programs. In particular, the promotion, sales and marketing of healthcare items and services is subject to extensive laws and regulations designed to prevent fraud, kickbacks, self-dealing, and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive, and other business arrangements. We may also be subject to federal, state and foreign laws governing the privacy and security of identifiable patient information. The U.S. healthcare laws and regulations that may affect our ability to operate include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, any person or entity from knowingly and willfully, offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, the purchasing, leasing, ordering or arranging for the purchase, lease, or order of any item or service reimbursable under Medicare, Medicaid or other federal healthcare programs. The term “remuneration” has been broadly interpreted to include anything of value. Although there are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, the exceptions and safe harbors are drawn narrowly. Practices that may be alleged to be intended to induce prescribing, purchases or recommendations, include any payments of more than fair market value, and may be subject to scrutiny if they do not qualify for an exception or safe harbor. In addition, a person or entity does not need to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation.
- federal civil and criminal false claims laws, including the federal civil False Claims Act, and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment or approval from Medicare, Medicaid, or other federal government programs that are false or fraudulent or knowingly making a false statement to improperly avoid, decrease or conceal an obligation to pay money to the federal government, including federal healthcare programs. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act and the civil monetary penalties statute;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created new federal civil and criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or

property owned by, or under the custody or control of, any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying, concealing or covering up by any trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statements in connection with the delivery of, or payment for, healthcare benefits, items or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, and their respective implementing regulations, which impose requirements on certain healthcare providers, health plans, and healthcare clearinghouses, known as covered entities, as well as their respective business associates that perform services for them that involve the use, or disclosure of, individually identifiable health information, relating to the privacy, security and transmission of individually identifiable health information; and
- the federal Physician Payments Sunshine Act, which requires certain manufacturers of drugs, devices, biologicals and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report annually to CMS information related to payments or other transfers of value made to physicians, as defined by such law, and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. Beginning in 2022, such obligations will include payments and other transfers of value provided in the previous year to certain other healthcare professionals, including physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, and certified nurse-midwives.

We may also be subject to state and foreign equivalents of each of the healthcare laws described above, among others, some of which may be broader in scope. For example, we may be subject to the following: state anti-kickback and false claims laws that may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third party payors, including private insurers, or that apply regardless of payor; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government; state laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers, marketing expenditures, or drug pricing; state and local laws requiring the registration of pharmaceutical sales and medical representatives; and state and foreign laws, such as the European Union General Data Protection Regulation, or GDPR, governing the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Additionally, we may be subject to federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers.

Because of the breadth of these laws and the narrowness of the statutory exceptions and regulatory safe harbors available, it is possible that some of our business activities, or our arrangements with physicians, could be subject to challenge under one or more of such laws. It is not always possible to identify and deter employee misconduct or business noncompliance, and the precautions we take to detect and prevent inappropriate conduct may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. Efforts to ensure that our business arrangements will comply with applicable healthcare laws may involve substantial costs. It is possible that governmental and enforcement authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law interpreting

applicable fraud and abuse or other healthcare laws and regulations. If we or our employees, independent contractors, consultants, commercial partners and vendors violate these laws, we may be subject to investigations, enforcement actions and/or significant penalties, including the imposition of significant civil, criminal and administrative penalties, damages, disgorgement, monetary fines, imprisonment, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, additional reporting requirements and/or oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations. In addition, the approval and commercialization of tildacerfont outside the United States will also likely subject us to foreign equivalents of the healthcare laws mentioned above, among other foreign laws.

Our internal computer systems, or those used by our third-party collaborators or other contractors or consultants, may fail or suffer security breaches.

Despite the implementation of security and back-up measures, our internal computer, server, and other information technology systems as well as those of our third-party collaborators, consultants, contractors, suppliers, and service providers, may be vulnerable to damage from physical or electronic break-ins, computer viruses, malware, ransomware, natural disasters, terrorism, war, telecommunication and electrical failure, denial of service, and other cyberattacks or disruptive incidents that could result in unauthorized access to, use or disclosure of, corruption of, or loss of sensitive, and/ or proprietary data, including personal information, including health-related information, and could subject us to significant liabilities and regulatory and enforcement actions, and reputational damage. For example, the loss of clinical trial data from completed or ongoing clinical trials could result in delays in any regulatory approval or clearance efforts and significantly increase our costs to recover or reproduce the data, and subsequently commercialize the product. Additionally, theft of our intellectual property or proprietary business information could require substantial expenditures to remedy. If we or our third-party collaborators, consultants, contractors, suppliers, or service providers were to suffer an attack or breach, for example, that resulted in the unauthorized access to or use or disclosure of personal or health information, we may have to notify consumers, partners, collaborators, government authorities, and the media, and may be subject to investigations, civil penalties, administrative and enforcement actions, and litigation, any of which could harm our business and reputation. Likewise, we rely on our third-party research institution collaborators and other third parties to conduct clinical trials, and similar events relating to their computer systems could also have a material adverse effect on our business. The COVID-19 pandemic has generally increased the risk of cybersecurity intrusions. For example, there has been an increase in phishing and spam emails as well as social engineering attempts from “hackers” hoping to use the recent COVID-19 pandemic to their advantage. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or systems, or inappropriate or unauthorized access to or disclosure or use of confidential, proprietary, or other sensitive, personal, or health information, we could incur liability and suffer reputational harm, and the development and commercialization of tildacerfont could be delayed.

Failure to comply with data protection laws and regulations could lead to government enforcement actions (which could include civil or criminal penalties), private litigation, and/or adverse publicity and could negatively affect our operating results and business.

We and our partners may be subject to federal, state, and foreign data protection laws and regulations (i.e., laws and regulations that address privacy and data security). In the United States, numerous federal and state laws and regulations, including state data breach notification laws, state health information privacy laws, and federal and state consumer protection laws and regulations that govern the collection, use, disclosure, and protection of health-related and other personal information could apply to our operations or the operations of our partners. In addition, we may obtain health

information from third parties (including research institutions from which we obtain clinical trial data) that are subject to privacy and security requirements under HIPAA. Depending on the facts and circumstances, we could be subject to criminal penalties if we knowingly obtain, use, or disclose individually identifiable health information maintained by a HIPAA-covered entity in a manner that is not authorized or permitted by HIPAA.

Even when HIPAA does not apply, according to the Federal Trade Commission, or the FTC, failing to take appropriate steps to keep consumers' personal information secure may constitute unfair acts or practices in or affecting commerce in violation of the Federal Trade Commission Act. The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities. Individually identifiable health information is considered sensitive data that merits stronger safeguards.

In addition, California recently enacted the California Consumer Privacy Act, or CCPA, which creates new individual privacy rights for California consumers (as defined in the law) and places increased privacy and security obligations on entities handling certain personal data of consumers or households. The CCPA requires covered companies to provide new disclosure to consumers about such companies' data collection, use and sharing practices, provide such consumers new ways to opt-out of certain sales or transfers of personal information, and provide consumers with additional causes of action. The CCPA became effective January 1, 2020, and the California Attorney General may bring enforcement actions for violations beginning July 1, 2020. The CCPA has been amended from time to time, and it remains unclear what, if any, further modifications will be made to this legislation or how it will be interpreted. As currently written, the CCPA may impact our business activities and exemplifies the vulnerability of our business to the evolving regulatory environment related to personal data and protected health information.

Foreign data protection laws, including the GDPR, which became effective in May 2018, may also apply to health-related and other personal data obtained outside of the United States. The GDPR also provides that EU and the European Economic Area, or EEA, member states may make their own further laws and regulations to introduce specific requirements related to the processing of "special categories of personal data", including personal data related to health data, biometric data, genetic information, and personal data related to criminal offences or convictions. For example, in the United Kingdom, or the UK, the Data Protection Act 2018 complements the GDPR in this regard in the UK.

Following the UK's withdrawal from the EU on January 31, 2020, pursuant to the transitional arrangements agreed between the UK and EU, the GDPR will continue to have effect in UK law, until December 31, 2020, in the same fashion as was the case prior to that withdrawal as if the UK remained a member state of the EU for such purposes. Following December 31, 2020, it is likely that the data protection obligations of the GDPR will continue to apply to UK-related processing of personal data in substantially unvaried form and fashion, for at least the short term thereafter.

The GDPR has imposed stringent requirements for controllers and processors of personal data, including, for example, by extending the rights available to affected data subjects, materially expanding the definition of what is expressly noted to constitute personal data, introducing mandatory personal data breach notifications to Supervisory Authorities and affected individuals (in certain circumstances), setting limitations on retention of information, increasing requirements pertaining to special categories of personal data (such as health data, biometric data, genetic information), and requiring that prescriptive obligations must be met when we engage third-party processors to process of personal data on our behalf. The GDPR also imposes strict rules on the transfer of personal data out of the EEA and UK to the United States and other third countries. Recent legal developments in the EU have created complexity and uncertainty regarding transfers of personal data from the EEA to the United

States, e.g. on July 16, 2020, the Court of Justice of the European Union, or CJEU, invalidated the EU-US Privacy Shield Framework, or Privacy Shield, under which personal data could be transferred from the EEA to US entities who had self-certified under the Privacy Shield scheme. While the CJEU upheld the adequacy of the standard contractual clauses (a standard form of contract approved by the European Commission as an adequate personal data transfer mechanism, and potential alternative to the Privacy Shield), it made clear that reliance on them alone may not necessarily be sufficient in all circumstances. Use of the standard contractual clauses must now be assessed on a case-by-case basis taking into account the legal regime applicable in the destination country, in particular applicable surveillance laws and rights of individuals and additional measures and/or contractual provisions may need to be put in place, however, the nature of these additional measures is currently uncertain. As supervisory authorities issue further guidance on personal data export mechanisms, including circumstances where the standard contractual clauses cannot be used, and/or start taking enforcement action, we could suffer additional costs, complaints, and/or regulatory investigations or fines, and/or if we are otherwise unable to transfer personal data between and among countries and regions in which we operate, it could affect the manner in which we provide our services, the geographical location or segregation of our relevant systems and operations, and could adversely affect our financial results.

The GDPR applies to any company established in the EEA as well as to those outside the EEA if they process personal data in relation to the offering of goods or services to individuals in the EEA and/or the monitoring of their behavior. Accordingly, we may be subject to the GDPR in relation to our data processing activities that are carried out in relation to individuals in the EEA. Under the GDPR, fines of up to €20 million or up to 4% of an undertaking's total worldwide annual turnover of the preceding financial year, whichever is higher, may be imposed. Further, following the withdrawal of the UK from the EU and the end of the transitional period, we will have to comply with the GDPR and separately the GDPR as implemented in the UK, each regime having the ability to fine up to the greater of €20 million/ £17 million or 4% of global turnover. In addition to administrative fines, a wide variety of other potential enforcement powers are available to competent authorities in respect of potential and suspected violations of the GDPR, including extensive audit and inspection rights, and powers to order temporary or permanent bans on all or some processing of personal data carried out by noncompliant actors. Implementing mechanisms to endeavor to ensure compliance with the GDPR and relevant local legislation in EEA member states and the UK may be onerous and may interrupt or delay our development activities, and adversely affect our business, financial condition, results of operations and prospects. In addition to the foregoing, a breach of the GDPR or other applicable privacy and data protection laws and regulations could result in regulatory investigations, reputational damage, orders to cease/change our use of data, enforcement notices, or potential civil claims including class action-type litigation. While we have taken steps to comply with the GDPR where applicable, including by reviewing our security procedures, engaging data protection personnel, and entering into data processing agreements with relevant contractors, our efforts to achieve and remain in compliance may not be fully successful.

Compliance with U.S. and foreign privacy and security laws, rules and regulations could require us to take on more onerous obligations in our contracts, require us to engage in costly compliance exercises, restrict our ability to collect, use and disclose data, or in some cases, impact our or our partners' or suppliers' ability to operate in certain jurisdictions. Each of these constantly evolving laws can be subject to varying interpretations. Failure to comply with U.S. and foreign data protection laws and regulations could result in government investigations and enforcement actions (which could include civil or criminal penalties), fines, private litigation, and/or adverse publicity and could negatively affect our operating results and business. Moreover, patients about whom we or our partners obtain information, as well as the providers who share this information with us, may contractually limit our ability to use and disclose the information. Claims that we have violated individuals' privacy rights, failed to comply with data protection laws, or breached our contractual obligations, even if we are not found liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

The withdrawal of the UK from the EU may adversely impact our ability to obtain regulatory approvals of our product candidates in the EU, result in restrictions or imposition of taxes and duties for importing our product candidates into the EU, and may require us to incur additional expenses in order to develop, manufacture and commercialize our product candidates in the EU.

Following the result of a referendum in 2016, the UK left the EU on January 31, 2020, commonly referred to as Brexit. Pursuant to the formal withdrawal arrangements agreed between the UK and the EU, the UK will be subject to a transition period until December 31, 2020, or the Transition Period, during which EU rules will continue to apply. During the Transition Period, the negotiations between the UK and the EU have continued in relation to the customs and trading relationship between the UK and the EU following the expiry of the Transition Period. Under the formal withdrawal arrangements between the UK and the EU parties had until June 30, 2020 to agree to extend the Transition Period if required. No such extension was agreed prior to such date. No agreement has yet been reached between the UK and the EU and it may be the case that no formal customs and trading agreement will be reached prior to the expiry of the Transition Period on December 31, 2020.

Since a significant proportion of the regulatory framework in the UK applicable to our business and our product candidates is derived from EU directives and regulations, Brexit, following the Transition Period, could materially impact the regulatory regime with respect to the development, manufacture, importation, approval and commercialization of our product candidates in the UK or the EU. For example, as a result of the uncertainty surrounding Brexit, the EMA relocated to Amsterdam from London. Following the Transition Period, the UK will no longer be covered by the centralized procedures for obtaining EU-wide marketing authorization from the EMA and, unless a specific agreement is entered into, a separate process for authorization of drug products, including tildacerfont and any future product candidates, will be required in the UK, the potential process for which is currently unclear. Any delay in obtaining, or an inability to obtain, any marketing approvals, as a result of Brexit or otherwise, would prevent us from commercializing our tildacerfont in the UK or the EU and restrict our ability to generate revenue and achieve and sustain profitability. In addition, we may be required to pay taxes or duties or be subjected to other hurdles in connection with the importation of our product candidates into the EU, or we may incur expenses in establishing a manufacturing facility in the EU in order to circumvent such hurdles. If any of these outcomes occur, we may be forced to restrict or delay efforts to seek regulatory approval in the UK or the EU for tildacerfont and any future product candidates, or incur significant additional expenses to operate our business, which could significantly and materially harm or delay our ability to generate revenues or achieve profitability of our business. Any further changes in international trade, tariff and import/export regulations as a result of Brexit or otherwise may impose unexpected duty costs or other non-tariff barriers on us. These developments, or the perception that any of them could occur, may significantly reduce global trade and, in particular, trade between the impacted nations and the UK. It is also possible that Brexit may negatively affect our ability to attract and retain employees, particularly those from the EU.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of tildacerfont and any future product candidates.

We face an inherent risk of product liability as a result of the clinical testing of tildacerfont and any future product candidates and will face an even greater risk if we commercialize any products. For example, we may be sued if tildacerfont or any future product candidates causes or is perceived to cause injury or is found to be otherwise unsuitable during clinical testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability, and a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of tildacerfont. Even successful defense would require significant

financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for tildacerfont and any future product candidates;
- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulatory authorities;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing, or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize tildacerfont and any future product candidates; or
- a decline in our share price.

Our inability to obtain and retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of products we develop. We currently carry an aggregate of up to $7.0 million of product liability insurance covering our clinical trials. Although we maintain such insurance, any claim that may be brought against us could result in a court judgment or settlement in an amount that is not covered, in whole or in part, by our insurance or that is in excess of the limits of our insurance coverage. If we determine that it is prudent to increase our product liability coverage due to the commercial launch of any approved product, we may be unable to obtain such increased coverage on acceptable terms, or at all. Our insurance policies also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We will have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts.

We are subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws and anti-money laundering laws and regulations. Compliance with these legal standards could impair our ability to compete in domestic and international markets. We can face criminal liability and other serious consequences for violations, which can harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, and anti-corruption and anti-money laundering laws and regulations, including the FCPA, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, clinical research organizations, contractors and other collaborators and partners from authorizing, promising, offering, providing, soliciting or receiving, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. We may engage third parties for clinical trials outside of the United States, to sell our products internationally once we enter a commercialization phase, and/or to obtain necessary permits, licenses, patent registrations and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, clinical research organizations, contractors and other collaborators and partners, even if we do not explicitly authorize or

have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences.

Our ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.

We have incurred substantial losses during our history and do not expect to become profitable in the near future, and we may never achieve profitability. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire (if at all). At December 31, 2019, after reducing net operating losses, or NOLs, and research and development credits for amounts not expected to be utilized, we had federal NOL carryforwards of approximately $29.8 million. As of December 31, 2019, we had no state NOL carryforwards. The federal NOL carryforwards arising in taxable years beginning prior to 2018 will begin to expire in 2036, unless previously utilized. We also have federal and state research and development credit carryforwards totaling $0.5 million and $0.3 million, respectively. The federal research and development credit carryforwards will begin to expire in 2036, unless previously utilized. The state research and development credits will not expire.

Under the Tax Act, as modified by the CARES Act, federal NOL carryforwards generated in tax years beginning after December 31, 2017 may be carried forward indefinitely but, in the case of tax years beginning after 2020, may only be used to offset 80% of our taxable income annually. Under the Tax Act, as modified by the CARES Act, federal NOL carryforwards generated in taxable years beginning in 2018, 2019 and 2020 will similarly carry forward indefinitely but will not be subject to such 80% of annual taxable income limitation. Our NOLs and tax credit carryforwards are subject to review and possible adjustment by the Internal Revenue Service and state tax authorities and may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest of significant stockholders over a rolling three-year period in excess of 50 percentage points (by value), as defined under Section 382 of the Internal Revenue Code of 1986, as amended. Our ability to utilize our NOL carryforwards and other tax attributes to offset future taxable income or tax liabilities may be limited as a result of ownership changes, including potential changes in connection with this offering. Similar rules may apply under state tax laws. Such limitations could result in the expiration of our carryforwards before they can be utilized and, if we are profitable, our future cash flows could be adversely affected due to our increased taxable income or tax liability. An ownership change analysis covering periods through December 31, 2019 concluded that an ownership change occurred in May 2016. As a result of the ownership change, we derecognized NOL-related deferred tax assets down to the amount expected to be realized. Our ability to use our remaining NOL carryforwards may be further limited if we experience a Section 382 ownership change as a result of future changes in our stock ownership. As of December 31, 2018 and 2019, we recorded a full valuation allowance on our deferred tax assets.

The Tax Act, as modified by the CARES Act, may materially adversely affect our financial condition, results of operations and cash flows.

The Tax Act, as modified by the CARES Act, has significantly changed the U.S. federal income taxation of U.S. corporations, including reducing the U.S. corporate income tax rate and revising the rules governing NOLs. Many of these changes are effective immediately, without any transition periods or grandfathering for existing transactions. The legislation is unclear in many respects and is subject to potential amendments and technical corrections, as well as interpretations and implementing regulations by the Treasury Department and U.S. Internal Revenue Service, any of which could lessen or increase certain adverse impacts of the legislation. In addition, it is unclear how these U.S. federal income tax changes will affect state and local taxation, which often uses federal taxable income as a

starting point for computing state and local tax liabilities. Based on our current evaluation of this legislation, the reduction of the U.S. corporate income tax rate required a write-down of our deferred income tax assets (including the value of our NOL carryforwards and our tax credit carryforwards).

There may be other material adverse effects resulting from the Tax Act, as modified by the CARES Act that we have not yet identified. While some of the changes made by the tax legislation may adversely affect us in one or more reporting periods, other changes may be beneficial on a going forward basis. We continue to work with our tax advisors to determine the full impact that the tax legislation as a whole will have on us. We urge our investors to consult with their legal and tax advisors with respect to such legislation and the potential tax consequences of investing in our common stock.

Risks Related to Our Reliance On Third Parties

We depend on intellectual property licensed from Lilly, the termination of which could result in the loss of significant rights, which would harm our business.

We are dependent on technology, patents, know-how, and proprietary materials, both our own and licensed from others. We entered into a license agreement with Lilly in May 2016 pursuant to which we were granted an exclusive, worldwide, royalty bearing, sublicensable license under certain technology, patent rights, know-how, and proprietary materials relating to certain CRF1 receptor antagonist compounds. Any termination of this license will result in the loss of significant rights and will restrict our ability to develop and commercialize tildacerfont. See “Business—License Agreement with Eli Lilly and Company” for a description of our license agreement, which includes a description of the termination provision of this agreement.

We are generally also subject to all of the same risks with respect to protection of intellectual property that we license, as we are for intellectual property that we own, which are described below under “Risks Related to Our Intellectual Property.” If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize products could suffer.

We rely on third parties to conduct our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize tildacerfont.

We currently rely on, and intend to continue relying on, third-party CROs in connection with our clinical trials for tildacerfont. We control or will control only certain aspects of their activities. Nevertheless, we are responsible for ensuring that each of our clinical trials is conducted in accordance with applicable protocol, legal, regulatory, and scientific standards, and our reliance on our CROs does not relieve us of our regulatory responsibilities. We and our CROs are required to comply with GCPs, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for product candidates in clinical development. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of these CROs fail to comply with applicable GCP regulations, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. Upon inspection, such regulatory authorities may determine that our clinical trials do not comply with the GCP regulations. In addition, our clinical trials must be conducted with drug product produced under cGMP regulations and will require a large number of test subjects. Our failure or any failure by our CROs to comply with these regulations or to recruit a sufficient number of patients may require us to repeat clinical trials, which would delay the regulatory approval process. Moreover, our business may be implicated if any of our CROs violates federal or state fraud and abuse or false claims laws and regulations or healthcare privacy and security laws.

Our CROs are not our employees and, except for remedies available to us under our agreements with such CROs, we cannot control whether or not they devote sufficient time and resources to our ongoing preclinical, clinical and nonclinical programs. These CROs may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other drug development activities, which could affect their performance on our behalf. If our CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our clinical trials may be extended, delayed, or terminated and we may not be able to complete development of, obtain regulatory approval for or successfully commercialize tildacerfont and any future product candidates. As a result, our financial results and the commercial prospects for tildacerfont and any future product candidates would be harmed, our costs could increase and our ability to generate revenues could be delayed.

Switching or adding CROs involves substantial cost and requires extensive management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. Although we carefully manage our relationships with our CROs, we may encounter challenges or delays in the future and these delays or challenges may have a material adverse impact on our business, prospects, financial condition, and results of operations.

In addition, quarantines, shelter-in-place, and similar government orders, or the perception that such orders, shutdowns or other restrictions on the conduct of business operations could occur, related to COVID-19 or other infectious diseases could impact personnel at our CROs, which could disrupt our clinical timelines, which could have a material adverse impact on our business, prospects, financial condition, and results of operations.

We rely completely on third parties to manufacture our preclinical and clinical drug supplies and we intend to rely on third parties to produce commercial supplies of tildacerfont and any future product candidates, if approved, and these third parties may fail to obtain and maintain regulatory approval for their facilities, fail to provide us with sufficient quantities of drug product or fail to do so at acceptable quality levels or prices.

We do not currently have nor do we plan to acquire the infrastructure or capability internally to manufacture our clinical drug supplies for use in the conduct of our clinical trials, and we lack the resources and the capability to manufacture tildacerfont and any future product candidates on a clinical or commercial scale. Instead, we rely on contract manufacturers for such production. In particular, we currently rely on a single-source manufacturer for drug product, and a single-source manufacturer for drug substance.

We do not currently have any long-term agreement with a manufacturer to produce raw materials, active pharmaceutical ingredients, or APIs, and the finished products of tildacerfont or the associated packaging and administration syringes used in our current product format and we may rely on single source suppliers for clinical supply of API and drug product of tildacerfont. We will need to identify and qualify a third-party manufacturer prior to commercialization of tildacerfont, and we intend to enter into agreements for commercial production with third-party suppliers. As tildacerfont is intended to treat rare endocrine disorders, we will only require a low-volume of raw materials and APIs, and in some cases with single-source suppliers and manufacturers. Our reliance on third-party suppliers and manufacturers, including single-source suppliers, could harm our ability to develop tildacerfont and any future product candidates or to commercialize any product candidates that are approved. Further, any delay in identifying and qualifying a manufacturer for commercial production could delay the potential commercialization of tildacerfont and any future product candidates, and, in the event that we do not have sufficient product to complete our clinical trials, it could delay such trials.

The facilities used by our contract manufacturers to manufacture tildacerfont and any future product candidates must be approved by the applicable regulatory authorities, including the FDA, pursuant to inspections that will be conducted after an NDA or comparable foreign regulatory marketing application is submitted. We currently do not control the manufacturing process of tildacerfont and are completely dependent on our contract manufacturing partners for compliance with the FDA's cGMP requirements for manufacture of both the active drug substances and finished drug product. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the FDA's strict regulatory requirements, they will not be able to secure or maintain FDA approval for the manufacturing facilities. In addition, we have no control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or any other applicable regulatory authority does not approve these facilities for the manufacture of tildacerfont or any future product candidates or if it withdraws any such approval in the future, or if our suppliers or contract manufacturers decide they no longer want to supply or manufacture for us, we may need to find alternative manufacturing facilities, in which case we might not be able to identify manufacturers for clinical or commercial supply on acceptable terms, or at all, which would significantly impact our ability to develop, obtain regulatory approval for, or market tildacerfont and any future product candidates.

In addition, the manufacture of pharmaceutical products is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of pharmaceutical products often encounter difficulties in production, particularly in scaling up and validating initial production and absence of contamination. These problems include difficulties with production costs and yields, quality control, including stability of the product, quality assurance testing, operator error, shortages of qualified personnel, as well as compliance with strictly enforced federal, state, and foreign regulations. Furthermore, if contaminants are discovered in our supply of tildacerfont or any future product candidates or in the manufacturing facilities, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. Any stability or other issues relating to the manufacture of tildacerfont may occur in the future. In addition, quarantines, shelter-in-place, and similar government orders, or the perception that such orders, shutdowns, or other restrictions on the conduct of business operations could occur, related to COVID-19 or other infectious diseases could impact personnel at our third-party manufacturing facilities upon which we rely, or the availability or cost of materials, which could disrupt the supply chain for our product candidates. Additionally, our manufacturers may experience manufacturing difficulties due to resource constraints or as a result of labor disputes or unstable political environments. If our manufacturers were to encounter any of these difficulties, or otherwise fail to comply with their contractual obligations, our ability to provide our product candidate to patients in clinical trials would be jeopardized. Any delay or interruption in the supply of clinical trial supplies could delay the completion of clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to commence new clinical trials at additional expense or terminate clinical trials completely.

If we or our third-party manufacturers use hazardous and biological materials in a manner that causes injury or violates applicable law, we may be liable for damages.

Our research and development activities involve the controlled use of potentially hazardous substances, including chemical and biological materials, by our third-party manufacturers. Our manufacturers are subject to federal, state, and local laws and regulations in the United States governing the use, manufacture, storage, handling and disposal of medical, radioactive and hazardous materials. Although we believe that our manufacturers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from medical, radioactive or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an

accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not have any insurance for liabilities arising from medical radioactive or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development, and production efforts, which could harm our business, prospects, financial condition, or results of operations.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain sufficient intellectual property protection for tildacerfont, any future product candidates, and other proprietary technologies we develop, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize tildacerfont, any future product candidates, and other proprietary technologies if approved, may be adversely affected.

Our commercial success will depend in part on our ability to obtain and maintain a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to tildacerfont, any future product candidates, and other proprietary technologies we develop. If we are unable to obtain or maintain patent protection with respect to tildacerfont, any future product candidates, and other proprietary technologies we may develop, our business, financial condition, results of operations, and prospects could be materially harmed.

The patent position of biotechnology and pharmaceutical companies is highly uncertain and involves complex legal, scientific, and factual questions and has been the subject of frequent litigation in recent years. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain. Our patent applications may not result in patents being issued which protect tildacerfont, any future product candidates, and other proprietary technologies we may develop or which effectively prevent others from commercializing competitive technologies and products. Further, no consistent policy regarding the breadth of claims allowed in pharmaceutical patents has emerged to date in the United States or in many jurisdictions outside of the United States. Changes in either the patent laws or interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property. Accordingly, we cannot predict the breadth of claims that may be enforced in the patents that may be issued from the applications we currently or may in the future own or license from third parties. Further, if any patents we obtain or license are deemed invalid and unenforceable, our ability to commercialize or license our technology could be adversely affected.

The patent application process is subject to numerous risks and uncertainties, and there can be no assurance that we or any of our actual or potential future collaborators will be successful in protecting tildacerfont, any future product candidates, and other proprietary technologies and their uses by obtaining, defending and enforcing patents. These risks and uncertainties include the following:

- the United States Patent and Trademark Office, or USPTO, and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process, the noncompliance with which can result in abandonment or lapse of a patent or patent application, and partial or complete loss of patent rights in the relevant jurisdiction;
- patent applications may not result in any patents being issued;
- patents that may be issued or in-licensed may be challenged, invalidated, modified, revoked, circumvented, found to be unenforceable, or may otherwise not provide any competitive advantage;
- our competitors, many of whom have substantially greater resources than we do and many of whom have made significant investments in competing technologies, may seek or may have

already obtained patents that will limit, interfere with, or eliminate our ability to make, use and sell our potential product candidates;

- other parties may have designed around our claims or developed technologies that may be related or competitive to our platform, may have filed or may file patent applications and may have received or may receive patents that overlap or conflict with our patent applications, either by claiming the same composition of matter, methods or formulations or by claiming subject matter that could dominate our patent position;
- any successful opposition to any patents owned by or licensed to us could deprive us of rights necessary for the practice of our technologies or the successful commercialization of any products or product candidates that we may develop;
- because patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we or our licensors were the first to file any patent application related to tildacerfont, any future product candidates, and other proprietary technologies and their uses;
- an interference proceeding can be provoked by a third party or instituted by the USPTO to determine who was the first to invent any of the subject matter covered by the patent claims of our applications for any application with an effective filing date before March 16, 2013;
- there may be significant pressure on the U.S. government and international governmental bodies to limit the scope of patent protection both inside and outside the United States for disease treatments that prove successful, as a matter of public policy regarding worldwide health concerns; and
- countries other than the United States may have patent laws less favorable to patentees than those upheld by U.S. courts, allowing foreign competitors a better opportunity to create, develop, and market competing product candidates in those countries.

The patent prosecution process is expensive, time-consuming, and complex, and we may not be able to file, prosecute, or maintain all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Although we enter into non-disclosure and confidentiality agreements with parties who have access to patentable aspects of our research and development output, such as our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors and other third parties, any of these parties may breach such agreements and disclose such output before a patent application is filed, thereby jeopardizing our ability to seek patent protection for such output. In addition, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our inventions and the prior art allow our inventions to be patentable over the prior art. Furthermore, publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot be certain that we or our licensors were the first to make the inventions claimed in any of our owned or licensed patents or pending patent applications, or that we or our licensors were the first to file for patent protection of such inventions.

The degree of future protection for our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. If we do not adequately protect our intellectual property and proprietary technology, competitors may be able to use tildacerfont, any future product candidates, and other proprietary technologies and erode or negate any competitive advantage we may have, which could have a material adverse effect on our financial condition and results of operations. For example:

- others may be able to make compounds that are similar to tildacerfont and any future product candidates but that are not covered by the claims of our patents;

- we might not have been the first to make the inventions covered by our pending patent applications;
- we might not have been the first to file patent applications for these inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies;
- any patents that we obtain may not provide us with any competitive advantages;
- we may not develop additional proprietary technologies that are patentable;
- our competitors might conduct research and development activities in countries where we do not have patent rights or where patent protection is weak and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we cannot ensure that any of our patents, or any of our pending patent applications, if issued, or those of our licensors, will include claims having a scope sufficient to protect our products;
- we cannot ensure that we will be able to successfully commercialize our products on a substantial scale, if approved, before the relevant patents that we own or license expire; or
- the patents of others may have an adverse effect on our business.

Others have filed, and in the future are likely to file, patent applications covering products and technologies that are similar, identical or competitive to ours or important to our business. We cannot be certain that any patent application owned by a third party will not have priority over patent applications filed or in-licensed by us, or that we or our licensors will not be involved in interference, opposition or invalidity proceedings before U.S. or non-U.S. patent offices.

We cannot be certain that the claims in our issued patents and pending patent applications covering tildacerfont or any future product candidates will be considered patentable by the USPTO, courts in the United States, or by patent offices and courts in foreign countries. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property internationally.

The strength of patents in the biotechnology and pharmaceutical fields involves complex legal and scientific questions and can be uncertain. The patent applications that we own or in-license may fail to result in issued patents with claims that cover tildacerfont and any future product candidates in the United States or in foreign countries. Even if such patents do successfully issue, third parties may challenge the ownership, validity, enforceability, or scope thereof, which may result in such patents being narrowed, invalidated, or held unenforceable. Any successful opposition to our patents could deprive us of exclusive rights necessary for the successful commercialization of tildacerfont and any future product candidates. Furthermore, even if they are unchallenged, our patents may not adequately protect our intellectual property, provide exclusivity for tildacerfont or any future product candidates or prevent others from designing around our claims. If the breadth or strength of protection provided by the patents we hold with respect to tildacerfont or any future product candidates is threatened, it could dissuade companies from collaborating with us to develop, or threaten our ability to commercialize, tildacerfont or any future product candidates.

For U.S. patent applications in which claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third party or instituted by the USPTO to determine who was the first to invent any of the subject matter covered by the patent claims of our patents or patent applications. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Our participation in an interference proceeding may fail and, even if successful, may result in substantial costs and distract our management and other employees.

For U.S. patent applications containing a claim not entitled to priority before March 16, 2013, there is greater level of uncertainty in the patent law. In September 2011, the Leahy-Smith America Invents Act, or America Invents Act, was signed into law. The America Invents Act includes a number of significant changes to U.S. patent law, including provisions that affect the way patent applications will be prosecuted and may also affect patent litigation. The USPTO is developing regulations and procedures to govern the administration of the America Invents Act, and many of the substantive changes to patent law associated with the America Invents Act, and in particular, the "first to file" provisions, were enacted on March 16, 2013. This will require us to be cognizant going forward of the time from invention to filing of a patent application and be diligent in filing patent applications, but circumstances could prevent us from promptly filing patent applications on our inventions. It remains unclear what impact the America Invents Act will have on the operation of our business. As such, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

Patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time.

The term of any individual patent depends on applicable law in the country where the patent is granted. In the United States, provided all maintenance fees are timely paid, a patent generally has a term of 20 years from its application filing date or earliest claimed non-provisional filing date. Extensions may be available under certain circumstances, but the life of a patent and, correspondingly, the protection it affords is limited. Even if we or our licensors obtain patents covering our product candidates, when the terms of all patents covering a product expire, our business may become subject to competition from competitive products, including generic products. Given the amount of time required for the development, testing, and regulatory review and approval of new product candidates, patents protecting such candidates may expire before or shortly after such candidates are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

If we do not obtain patent term extension for tildacerfont, our business may be materially harmed.

Depending upon the timing, duration, and specifics of any FDA marketing approval of tildacerfont, or any future product candidate we may develop, one or more of patents issuing from our U.S. patent applications may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Action of 1984, or Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent extension term, or PTE, of up to five years as compensation for patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent may be extended and only those claims covering the approved drug, a method for using it or a method for manufacturing it may be extended. Similar patent term restoration provisions to compensate for commercialization delay caused by regulatory review are also available in certain foreign jurisdictions, such as in Europe under Supplemental Protection Certificate, or SPC. If we encounter delays in our development efforts, including our clinical trials, the period of time during which we could market tildacerfont and any future product candidates under patent protection would be reduced. Additionally, we may not receive an extension if we fail to apply within applicable deadlines, fail to apply prior to expiration of relevant patents, or otherwise fail to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or restoration, or the term of any such extension is less than we request, the period during which we will have the right to exclusively market our product will be shortened and our competitors may obtain approval of competing products following our patent expiration, and our revenue could be reduced.

If we fail to comply with our obligations in the agreements under which we license intellectual property rights from third parties, such as our license agreement with Lilly, or otherwise experience disruptions to our business relationships with our licensors, we could lose license rights that are important to our business.

We are a party to a license agreement with Lilly under which we are granted intellectual property rights that are important to our business and our only product candidate, tildacerfont. If we fail to comply with our obligations under the license agreement, or we are subject to a bankruptcy, the license agreement may be terminated, in which event we would not be able to develop, commercialize or market tildacerfont. See "Business—License Agreement with Eli Lilly and Company" for a description of our license agreement with Lilly.

Licensing of intellectual property rights is of critical importance to our business and involves complex legal, business and scientific issues. Disputes may arise between us and our licensors regarding intellectual property rights subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe on intellectual property rights of the licensor that are not subject to the license agreement;
- our right to sublicense intellectual property rights to third parties under collaborative development relationships;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of tildacerfont, and what activities satisfy those diligence obligations; and
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners.

If disputes over intellectual property rights that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, our business, results of operations, financial condition, and prospects may be adversely affected. We may enter into additional licenses in the future and if we fail to comply with obligations under those agreements, we could suffer adverse consequences.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment, and other similar provisions during the patent process. Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on any issued patents and/or applications are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patents and/or applications. We have systems in place to remind us to pay these fees, and we employ an outside firm and rely on our outside counsel to pay these fees due to foreign patent agencies. While an inadvertent lapse may sometimes be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, our competitors might be able to enter the market with similar or identical products or technology earlier than should otherwise have been the case, which would have a material adverse effect on our business, financial condition, results of operations, and prospects.

Changes in U.S. patent law could diminish the value of patents in general, thereby impairing our ability to protect tildacerfont.

As is the case with other biotechnology and pharmaceutical companies, our success is heavily dependent on intellectual property, particularly on obtaining and enforcing patents. Our patent rights may be affected by developments or uncertainty in U.S. or foreign patent statutes, patent case law, USPTO rules and regulations or the rules and regulations of foreign patent offices. Obtaining and enforcing patents in the biotechnology and pharmaceutical industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. In addition, the United States may, at any time, enact changes to U.S. patent law and regulations, including by legislation, by regulatory rule-making, or by judicial precedent, that adversely affect the scope of patent protection available and weaken the rights of patent owners to obtain patents, enforce patent infringement and obtain injunctions and/or damages. For example, the scope of patentable subject matter under 35 U.S.C. 101 has evolved significantly over the past several years as the Court of Appeals for the Federal Circuit and the Supreme Court issued various opinions, and the USPTO modified its guidance for practitioners on multiple occasions. Other countries may likewise enact changes to their patent laws in ways that adversely diminish the scope of patent protection and weaken the rights of patent owners to obtain patents, enforce patent infringement, and obtain injunctions and/or damages.

Further, the United States and other governments may, at any time, enact changes to law and regulation that create new avenues for challenging the validity of issued patents. For example, the America Invents Act created new administrative post-grant proceedings, including post-grant review, inter partes review, and derivation proceedings that allow third parties to challenge the validity of issued patents. This applies to all of our U.S. patents, even those issued before March 16, 2013. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in U.S. federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

We may not be able to protect our intellectual property rights throughout the world.

Patents are of national or regional effect. Filing, prosecuting, and defending patents on tildacerfont, any future product candidates, and other proprietary technologies we develop in all countries throughout the world would be prohibitively expensive. In addition, the laws of some foreign countries do not protect intellectual property rights in the same manner and to the same extent as laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement of such patent protection is not as strong as that in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

The requirements for patentability may differ in certain countries. For example, unlike other countries, China has a heightened requirement for patentability, and specifically requires a detailed description of medical uses of a claimed drug. In India, unlike the United States, there is no link between regulatory approval for a drug and its patent status. In addition to India, certain countries in

Europe and developing countries, including China, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, some countries limit the enforceability of patents against government agencies or government contractors.

In those countries, we may have limited remedies if patents are infringed or if we are compelled to grant a license to a third party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. Accordingly, our efforts to enforce intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we own or license.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets, and other intellectual property protection, particularly those relating to biotechnology or pharmaceutical products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

We may become subject to claims challenging the inventorship or ownership of our patents and other intellectual property.

We may be subject to claims that former employees (including former employees of our licensors), collaborators or other third parties have an interest in our patents rights, trade secrets, or other intellectual property as an inventor or co-inventor. The failure to name the proper inventors on a patent application can result in the patents issuing thereon being unenforceable. For example, we may have inventorship disputes arise from conflicting views regarding the contributions of different individuals named as inventors, the effects of foreign laws where foreign nationals are involved in the development of the subject matter of the patent, conflicting obligations of third parties involved in developing tildacerfont or as a result of questions regarding co-ownership of potential joint inventions. Litigation may be necessary to resolve these and other claims challenging inventorship and/or ownership. Alternatively, or additionally, we may enter into agreements to clarify the scope of our rights in such intellectual property. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business, financial condition, results of operations and prospects. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

We may not be successful in obtaining or maintaining necessary rights to product components and processes for our development pipeline through acquisitions and in-licenses.

Presently we have intellectual property rights, through licenses from third parties including Lilly, related to tildacerfont. Because our program may require the use of additional proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to acquire, in-license or use these proprietary rights. In addition, tildacerfont may require specific formulations to work effectively and efficiently and these rights may be held by others. We may be unable to acquire or in-license, on reasonable terms, proprietary rights related to any compositions, formulations, methods of use, processes or other intellectual property rights from third parties that we identify as being

necessary for tildacerfont. Even if we are able to obtain a license to such proprietary rights, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology.

Where we obtain licenses from or collaborate with third parties, we may not have the right to control the preparation, filing, and prosecution of patent applications, or to maintain the patents, covering technology that we license from third parties, or such activities, if controlled by us, may require the input of such third parties. We may also require the cooperation of our licensors and collaborators to enforce any licensed patent rights, and such cooperation may not be provided. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business, or in compliance with applicable laws and regulations, which may affect the validity and enforceability of such patents or any patents that may issue from such application. Moreover, if we do obtain necessary licenses, we will likely have obligations under those licenses, including making royalty and milestone payments, and any failure to satisfy those obligations could give our licensor the right to terminate the license. Termination of a necessary license, or expiration of licensed patents or patent applications, could have a material adverse impact on our business. Our business would suffer if any such licenses terminate, if the licensors fail to abide by the terms of the license, if the licensors fail to enforce licensed patents against infringing third parties, if the licensed patents or other rights are found to be invalid or unenforceable, or if we are unable to enter into necessary licenses on acceptable terms. Furthermore, if any licenses terminate, or if the underlying patents fail to provide the intended exclusivity, competitors or other third parties may gain the freedom to seek regulatory approval of, and to market, products identical or similar to ours. Moreover, our licensors may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing or otherwise violating the licensor's rights. In addition, while we cannot currently determine the amount of the royalty obligations we would be required to pay on sales of future products, if any, the amounts may be significant. The amount of our future royalty obligations will depend on the technology and intellectual property we use in products that we successfully develop and commercialize, if any. Therefore, even if we successfully develop and commercialize products, we may be unable to achieve or maintain profitability.

The licensing and acquisition of third-party proprietary rights is a competitive area, and companies, which may be more established, or have greater resources than we do, may also be pursuing strategies to license or acquire third-party proprietary rights that we may consider necessary or attractive in order to commercialize tildacerfont. More established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities.

For example, we may collaborate with U.S. and foreign academic institutions to accelerate our preclinical research or development under written agreements with these institutions. Typically, these institutions provide us with an option to negotiate an exclusive license to any of the institution's proprietary rights in technology resulting from the collaboration. Regardless of such option to negotiate a license, we may be unable to negotiate a license within the specified time frame or under terms that are acceptable to us. If we are unable to do so, the institution may offer, on an exclusive basis, their proprietary rights to other parties, potentially blocking our ability to pursue our program.

In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us, either on reasonable terms, or at all. We also may be unable to license or acquire third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment, or at all. If we are unable to successfully obtain rights to required third-party intellectual property rights on commercially reasonable terms, our ability to commercialize our products, and our business, financial condition, and prospects for growth, could suffer.

Third-party claims alleging intellectual property infringement may prevent or delay our drug discovery and development efforts.

Our success depends in part on our avoiding infringement of the patents and proprietary rights of third parties. There is a substantial amount of litigation, both within and outside the United States, involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, as well as administrative proceedings for challenging patents, including inter partes review, interference and reexamination proceedings before the USPTO, or oppositions and other comparable proceedings in foreign jurisdictions. The America Invents Act introduced new procedures including inter partes review and post grant review. The implementation of these procedures brings uncertainty to the possibility of challenges to our patents in the future and the outcome of such challenges. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing tildacerfont. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our activities related to tildacerfont may give rise to claims of infringement of the patent rights of others.

The pharmaceutical and biotechnology industries have produced a proliferation of patents, and it is not always clear to industry participants, including us, which patents cover various types of products or methods of use. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. We cannot assure you that any of our current or future product candidates will not infringe existing or future patents. We may not be aware of patents that have already issued that a third party might assert are infringed by one of our current or future product candidates. Nevertheless, we are not aware of any issued patents that will prevent us from marketing tildacerfont.

Third parties may assert that we are employing their proprietary technology without authorization. There may be third-party patents of which we are currently unaware with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of tildacerfont. Because patent applications can take many years to issue and may be confidential for 18 months or more after filing, there may be currently pending third-party patent applications which may later result in issued patents that tildacerfont, any future product candidates, and other proprietary technologies may infringe, or which such third parties claim are infringed by the use of our technologies. Parties making claims against us for infringement or misappropriation of their intellectual property rights may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize tildacerfont or future product candidates. Defense of these claims, regardless of their merit, could involve substantial expenses and could be a substantial diversion of management and other employee resources from our business.

If we collaborate with third parties in the development of technology in the future, our collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to litigation or potential liability. Further, collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability. In the future, we may agree to indemnify our commercial collaborators against certain intellectual property infringement claims brought by third parties.

Any claims of patent infringement asserted by third parties would be time-consuming and could:

- result in costly litigation;
- divert the time and attention of our technical personnel and management;
- cause development delays;
- prevent us from commercializing tildacerfont or any future product candidates until the asserted patent expires or is finally held invalid, unenforceable, or not infringed in a court of law;

- require us to develop non-infringing technology, which may not be possible on a cost-effective basis;
- require us to pay damages to the party whose intellectual property rights we may be found to be infringing, which may include treble damages if we are found to have been willfully infringing such intellectual property;
- require us to pay the attorney's fees and costs of litigation to the party whose intellectual property rights we may be found to be willfully infringing; and/or
- require us to enter into royalty or license agreements, which may not be available on commercially reasonable terms, or at all.

If we are sued for patent infringement, we would need to demonstrate that our products or methods either do not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do either. Proving invalidity or unenforceability is difficult. For example, in the United States, proving invalidity before federal courts requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents. Even if we are successful in these proceedings, we may incur substantial costs and divert management's time and attention in pursuing these proceedings, which could have a material adverse effect on us. If we are unable to avoid infringing the patent rights of others, we may be required to seek a license, which may not be available, defend an infringement action or challenge the validity or enforceability of the patents in court. Patent litigation is costly and time-consuming. We may not have sufficient resources to bring these actions to a successful conclusion. In addition, if we do not obtain a license, develop or obtain non-infringing technology, fail to defend an infringement action successfully or have infringed patents declared invalid or unenforceable, we may incur substantial monetary damages, encounter significant delays in bringing tildacerfont to market and be precluded from developing, manufacturing or selling tildacerfont.

We do not always conduct independent reviews of pending patent applications of and patents issued to third parties. We cannot be certain that any of our or our licensors' patent searches or analyses, including but not limited to the identification of relevant patents, analysis of the scope of relevant patent claims or determination of the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third-party patent and pending application in the United States, Europe and elsewhere that is relevant to or necessary for the commercialization of our product candidates in any jurisdiction, because:

- some patent applications in the United States may be maintained in secrecy until the patents are issued;
- patent applications in the United States and elsewhere can be pending for many years before issuance, or unintentionally abandoned patents or applications can be revived;
- pending patent applications that have been published can, subject to certain limitations, be later amended in a manner that could cover our technologies, tildacerfont, and any future product candidates or the use of tildacerfont and any future product candidates;
- identification of third-party patent rights that may be relevant to our technology is difficult because patent searching is imperfect due to differences in terminology among patents, incomplete databases, and the difficulty in assessing the meaning of patent claims;
- patent applications in the United States are typically not published until 18 months after the priority date; and
- publications in the scientific literature often lag behind actual discoveries.

Furthermore, the scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history and can involve other factors such as expert opinion. Our interpretation of the relevance or the scope of claims in a patent or a pending application

may be incorrect, which may negatively impact our ability to market our products. Further, we may incorrectly determine that our technologies, products, or product candidates are not covered by a third party patent or may incorrectly predict whether a third party's pending patent application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or internationally that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our products or product candidates.

Our competitors may have filed, and may in the future file, patent applications covering technology similar to ours, and others may have or obtain patents or proprietary rights that could limit our ability to make, use, sell, offer for sale or import tildacerfont and future approved products or impair our competitive position. Numerous third-party U.S. and foreign issued patents and pending patent applications exist in the fields in which we are developing product candidates. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of tildacerfont. Any such patent application may have priority over our patent applications, which could further require us to obtain rights to issued patents covering such technologies. If another party has filed a U.S. patent application on inventions similar to ours, we may have to participate in an interference proceeding declared by the USPTO to determine priority of invention in the United States. The costs of these proceedings could be substantial, and it is possible that such efforts would be unsuccessful if, unbeknownst to us, the other party had independently arrived at the same or similar invention prior to our own invention, resulting in a loss of our U.S. patent position with respect to such inventions. Other countries have similar laws that permit secrecy of patent applications and may be entitled to priority over our applications in such jurisdictions.

Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations.

If a third party prevails in a patent infringement lawsuit against us, we may have to stop making and selling the infringing product, pay substantial damages, including treble damages and attorneys' fees if we are found to be willfully infringing a third party's patents, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure.

We cannot predict whether any such license would be available at all or whether it would be available on commercially reasonable terms. Furthermore, even in the absence of litigation, we may need to obtain licenses from third parties to advance our research or allow commercialization of tildacerfont. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we would be unable to further develop and commercialize tildacerfont, which could harm our business significantly. Even if we were able to obtain a license, the rights may be nonexclusive, which may give our competitors access to the same intellectual property.

We may be subject to claims that we have wrongfully hired an employee from a competitor or that we or our employees have wrongfully used or disclosed alleged confidential information or trade secrets of their former employers.

As is common in the biotechnology and pharmaceutical industries, in addition to our employees, we engage the services of consultants to assist us in the development of tildacerfont, any future product candidates, and other proprietary technologies. Many of these consultants, and many of our employees, were previously employed at, or may have previously provided or may be currently providing consulting services to, other pharmaceutical companies including our competitors or potential competitors. We may become subject to claims that we, our employees or a consultant inadvertently or

otherwise used or disclosed trade secrets or other information proprietary to their former employers or their former or current clients. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel, which could adversely affect our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to our management team and other employees.

We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time-consuming, and unsuccessful. Further, our issued patents could be found invalid or unenforceable if challenged in court, and we may incur substantial costs as a result of litigation or other proceedings relating to patent and other intellectual property rights.

Third parties including competitors may infringe, misappropriate or otherwise violate our patents, patents that may issue to us in the future, or the patents of our licensors that are licensed to us. To counter infringement or unauthorized use, we may need to or choose to file infringement claims, which can be expensive and time-consuming. We may not be able to prevent, alone or with our licensors, infringement, misappropriation, or other violation of our intellectual property, particularly in countries where the laws may not protect those rights as fully as in the United States.

If we choose to go to court to stop another party from using the inventions claimed in our patents, that individual or company has the right to ask the court to rule that such patents are invalid, unenforceable, or should not be enforced against that third party for any number of reasons. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge include an alleged failure to meet any of several statutory requirements for patentability, including lack of novelty, obviousness, lack of written description, indefiniteness, or non-enablement. Grounds for an unenforceability assertion could include an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO or made a misleading statement during prosecution, i.e., committed inequitable conduct. Third parties may also raise similar claims before the USPTO, even outside the context of litigation. Similar mechanisms for challenging the validity and enforceability of a patent exist in foreign patent offices and courts and may result in the revocation, cancellation, or amendment of any foreign patents we or our licensors hold now or in the future. The outcome following legal assertions of invalidity and unenforceability is unpredictable, and prior art could render our patents or those of our licensors invalid. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on such product candidate. Such a loss of patent protection would have a material adverse impact on our business.

Interference or derivation proceedings provoked by third parties or brought by us or declared by the USPTO may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms or at all, or if a non-exclusive license is offered and our competitors gain access to the same technology. Our defense of litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. In addition, the uncertainties associated with litigation could have a material adverse effect on our ability to raise the funds necessary to continue our clinical trials, continue our research programs, license necessary technology from third parties, or enter into development or manufacturing partnerships that would help us bring tildacerfont and any future product candidates to market.

Even if resolved in our favor, litigation or other legal proceedings relating to our intellectual property rights may cause us to incur significant expenses and could distract our technical and management

personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing, or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our ability to compete in the marketplace. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation.

Our ability to enforce our patent rights depends on our ability to detect infringement. It may be difficult to detect infringers who do not advertise the components or methods that are used in connection with their products and services. Moreover, it may be difficult or impossible to obtain evidence of infringement in a competitor's or potential competitor's product or service. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded if we were to prevail may not be commercially meaningful.

Because of the expense and uncertainty of litigation, we may not be in a position to enforce our intellectual property rights against third parties.

Because of the expense and uncertainty of litigation, we may conclude that even if a third party is infringing our issued patent, any patents that may be issued as a result of our pending or future patent applications or other intellectual property rights, the risk-adjusted cost of bringing and enforcing such a claim or action may be too high or not in the best interest of our company or our stockholders. In such cases, we may decide that the more prudent course of action is to simply monitor the situation or initiate or seek some other non-litigious action or solution.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed. Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

We rely on trade secrets to protect our proprietary technologies, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. We rely in part on confidentiality agreements with our employees, consultants, outside scientific collaborators, sponsored researchers, and other advisors, and inventions agreements with employees, consultants, and advisors, to protect our trade secrets and other proprietary information. In addition to contractual measures, we try to protect the confidential nature of our proprietary information using commonly accepted physical and technological security measures. Despite these efforts, we cannot provide any assurances that all such agreements have been duly executed, and these agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. In addition, others may independently discover our trade secrets and proprietary information. For example, the FDA, as part of its Transparency Initiative, is currently considering whether to make additional information publicly available on a routine basis, including information that we may consider to be trade secrets or other proprietary information, and it is not clear at the present time how the FDA's disclosure policies may change in the future, if at all. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

In addition, such security measures may not provide adequate protection for our proprietary information, for example, in the case of misappropriation of a trade secret by an employee, consultant, customer, or third party with authorized access. Our security measures may not prevent an employee, consultant or customer from misappropriating our trade secrets and providing them to a competitor, and recourse we take against such misconduct may not provide an adequate remedy to protect our interests fully. Monitoring unauthorized uses and disclosures is difficult, and we do not know whether the steps we have taken to protect our proprietary technologies will be effective. Unauthorized parties may also attempt to copy or reverse engineer certain aspects of our products that we consider proprietary. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret can be difficult, expensive and time-consuming, and the outcome is unpredictable. Even though we use commonly accepted security measures, the criteria for protection of trade secrets can vary among different jurisdictions.

Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. Moreover, third parties may still obtain this information or may come upon this or similar information independently, and we would have no right to prevent them from using that technology or information to compete with us. Trade secrets will over time be disseminated within the industry through independent development, the publication of journal articles, and the movement of personnel skilled in the art from company to company or academic to industry scientific positions. Though our agreements with third parties typically restrict the ability of our advisors, employees, collaborators, licensors, suppliers, third-party contractors, and consultants to publish data potentially relating to our trade secrets, our agreements may contain certain limited publication rights. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position. Because from time to time we expect to rely on third parties in the development, manufacture, and distribution of our products and provision of our services, we must, at times, share trade secrets with them. Despite employing the contractual and other security precautions described above, the need to share trade secrets increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. If any of these events occurs or if we otherwise lose protection for our trade secrets, the value of this information may be greatly reduced and our competitive position would be harmed. If we do not apply for patent protection prior to such publication or if we cannot otherwise maintain the confidentiality of our proprietary technology and other confidential information, then our ability to obtain patent protection or to protect our trade secret information may be jeopardized.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

Our future trademarks or trade names may be unable to be obtained, challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names, which we need to build name recognition among potential partners or customers in our markets of interest. At times, competitors may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. We may license our trademarks and trade names to third parties, such as distributors. Though these license agreements may provide guidelines for how our trademarks and trade names may be used, a breach of these agreements or misuse of our trademarks and tradenames by our licensees may jeopardize our rights in or diminish

the goodwill associated with our trademarks and trade names. Our efforts to enforce or protect our proprietary rights related to trademarks, trade names, trade secrets, domain names, copyrights, or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely affect our financial condition or results of operations.

Moreover, any name we have proposed to use with tildacerfont in the United States must be approved by the FDA, regardless of whether we have registered it, or applied to register it, as a trademark. The FDA typically conducts a review of proposed product names, including an evaluation of potential for confusion with other product names. If the FDA (or an equivalent administrative body in a foreign jurisdiction) objects to any of our proposed proprietary product names, it may be required to expend significant additional resources in an effort to identify a suitable substitute name that would qualify under applicable trademark laws, not infringe the existing rights of third parties, and be acceptable to the FDA. Similar requirements exist in Europe. Furthermore, in many countries, owning and maintaining a trademark registration may not provide an adequate defense against a subsequent infringement claim asserted by the owner of a senior trademark. At times, competitors or other third parties may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. If we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks.

Any collaboration arrangements that we may enter into in the future may not be successful, which could adversely affect our ability to develop and commercialize our products.

Any future collaborations that we enter into may not be successful. The success of our collaboration arrangements will depend heavily on the efforts and activities of our collaborators. Collaborations are subject to numerous risks, which may include that:

- collaborators have significant discretion in determining the efforts and resources that they will apply to collaborations;
- collaborators may not pursue development and commercialization of our products or may elect not to continue or renew development or commercialization programs based on trial or test results, changes in their strategic focus due to the acquisition of competitive products, availability of funding, or other external factors, such as a business combination that diverts resources or creates competing priorities;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with tildacerfont and any future product candidates;
- a collaborator with marketing, manufacturing, and distribution rights to one or more products may not commit sufficient resources to or otherwise not perform satisfactorily in carrying out these activities;
- we could grant exclusive rights to our collaborators that would prevent us from collaborating with others;
- collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and a collaborator that causes the delay or termination of the research, development, or commercialization of our current or future products or that results in costly litigation or arbitration that diverts management attention and resources;

- collaborations may be terminated, and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable current or future products;
- collaborators may own or co-own intellectual property covering our products that results from our collaborating with them, and in such cases, we would not have the exclusive right to develop or commercialize such intellectual property; and
- a collaborator's sales and marketing activities or other operations may not be in compliance with applicable laws resulting in civil or criminal proceedings.

Risks Related to This Offering and Ownership of Our Common Stock

We do not know whether an active, liquid and orderly trading market will develop for our common stock or what the market price of our common stock will be and as a result it may be difficult for you to sell your shares of our common stock.

Prior to this offering there has been no public market for shares of our common stock. Although we have applied to list our common stock on the Nasdaq Global Market, or Nasdaq, an active trading market for our shares may never develop or be sustained following this offering. You may not be able to sell your shares quickly or at the market price if trading in shares of our common stock is not active. The initial public offering price for our common stock will be determined through negotiations with the underwriters, and the negotiated price may not be indicative of the market price of our common stock after the offering. As a result of these and other factors, you may be unable to resell your shares of our common stock at or above the initial public offering price. Further, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic partnerships or acquire companies or products by using our shares of common stock as consideration.

The price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our common stock following this offering is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this prospectus, these factors include:

- the commencement, enrollment or results of our ongoing and planned clinical trials of tildacerfont or any future clinical trials we may conduct of tildacerfont and any future product candidates, or changes in the development status of tildacerfont and any future product candidates;
- acceptance by the FDA and EMA of data from our two Phase 2b clinical trials or any future clinical trials we conduct;
- any delay in our regulatory filings for tildacerfont and any future product candidates and any adverse development or perceived adverse development with respect to the applicable regulatory authority's review of such filings, including without limitation the FDA's issuance of a "refusal to file" letter or a request for additional information;
- adverse results or delays in clinical trials;
- our decision to initiate a clinical trial, not to initiate a clinical trial, or to terminate an existing clinical trial;
- adverse regulatory decisions, including failure to receive regulatory approval for tildacerfont and any future product candidates;
- changes in laws or regulations applicable to tildacerfont and any future product candidates, including but not limited to clinical trial requirements for approvals;

- the failure to obtain coverage and adequate reimbursement of tildacerfont and any future product candidates, if approved;
- changes on the structure of healthcare payment systems;
- adverse developments concerning our manufacturers;
- our inability to obtain adequate product supply for any approved drug product or inability to do so at acceptable prices;
- our inability to establish collaborations if needed;
- our failure to commercialize tildacerfont and any future product candidates;
- additions or departures of key scientific or management personnel;
- unanticipated serious safety concerns related to the use of tildacerfont and any future product candidates;
- introduction of new products or services offered by us or our competitors, or the release or publication of clinical trial results from competing product candidates;
- announcements of significant acquisitions, strategic partnerships, joint ventures, or capital commitments by us or our competitors;
- our ability to effectively manage our growth;
- the size and growth, if any, of the markets for classic CAH in adult and pediatric patients, non-classic CAH in adult patients and a subpopulation of females with a rare form of PCOS, and other rare endocrine disorders that we may target;
- actual or anticipated variations in quarterly operating results;
- our cash position;
- our failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- publication of research reports about us or our industry or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;
- overall performance of the equity markets;
- issuances of debt or equity securities;
- sales of our common stock by us or our stockholders in the future;
- trading volume of our common stock;
- changes in accounting practices;
- ineffectiveness of our internal controls;
- disputes or other developments relating to proprietary rights, including patents, litigation matters, and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- general political and economic conditions, including the COVID-19 pandemic; and
- other events or factors, many of which are beyond our control.

In addition, the stock market in general, and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. If the market price of our common stock after this offering does not exceed the initial public offering price, you may not realize any return on your investment in us and may lose some or all of your investment. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm our business, operating results or financial condition.

We do not intend to pay dividends on our common stock so any returns will be limited to the value of our stock.

We have never declared or paid any cash dividend on our common stock. We currently anticipate that we will retain future earnings for the development, operation, and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. In addition, pursuant to the Loan Agreement, we are prohibited from paying cash dividends without the prior written consent of Silicon Valley Bank, and future debt instruments may materially restrict our ability to pay dividends on our common stock. Any return to stockholders would therefore be limited to the appreciation, if any, of their stock.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Prior to this offering, our executive officers, directors, greater than 5% holders, and their affiliates owned approximately 91.7% of our voting stock as of June 15, 2020, and, upon the closing of this offering, that same group will hold approximately % of our outstanding voting stock (assuming no exercise of the underwriters' option to purchase additional shares). Therefore, even after this offering, these stockholders will have the ability to influence us through this ownership position. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may feel are in your best interest as one of our stockholders.

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

The initial public offering price is substantially higher than the net tangible book value per share of our common stock. Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the book value of our tangible assets after subtracting our liabilities. As a result, investors purchasing common stock in this offering will incur immediate dilution of $ per share, based on the assumed initial public offering price of $ per share and after deducting underwriting discounts and commissions and estimated offering expenses payable by us. Further, investors purchasing common stock in this offering will contribute approximately % of the total amount invested by stockholders since our inception, but will own only approximately % of the shares of common stock outstanding after giving effect to this offering.

This dilution is due to our investors who purchased shares prior to this offering having paid substantially less when they purchased their shares than the price offered to the public in this offering and the exercise of stock options granted to our employees. To the extent outstanding options or warrants are exercised, there will be further dilution to new investors. As a result of the dilution to investors purchasing shares in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation. For a further description of the dilution that you will experience immediately after this offering, see the section titled "Dilution."

We are an emerging growth company and a smaller reporting company, and the reduced reporting requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of certain exemptions from various public company reporting requirements, including being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results

of Operations" disclosure in this prospectus, not being required to have our internal control over financial reporting audited by our independent registered public accounting firm under Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We may take advantage of these exemptions until the last day of the fiscal year ending after the fifth anniversary of this offering or until we are no longer an emerging growth company, whichever is earlier. We will cease to be an emerging growth company prior to the end of such five-year period if certain earlier events occur, including if we become a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act, our annual gross revenues exceed $1.07 billion or we issue more than $1.0 billion of non-convertible debt in any three-year period.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to use this extended transition period under the JOBS Act until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act.

We are also a "smaller reporting company" as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company, which would allow us to take advantage of many of the same exemptions available to emerging growth companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation. We will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than $250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than $100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than $700.0 million measured on the last business day of our second fiscal quarter. Investors may find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We have identified a material weakness in our internal control over financial reporting and may identify material weaknesses in the future or otherwise fail to maintain proper and effective internal controls, which may impair our ability to produce accurate financial statements on a timely basis.

During the preparation of our financial statements for the years ended December 31, 2018 and 2019 included elsewhere in this registration statement, we identified a material weakness in internal control over financial reporting primarily related to a lack of timely review over the financial statement close process. During the periods under audit, we did not have a sufficient complement of qualified personnel within the accounting function and had a lack of segregation of duties to adequately conduct review and analysis of certain routine transactions.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. This material weakness could result in a misstatement of account balances or disclosures that would result in a material misstatement to the annual or interim financial statements that would not be prevented or detected. To address our material weakness, we have added a chief financial officer and have begun to implement new processes. We intend to continue to take steps to remediate the material weakness through hiring additional accounting and financial reporting personnel, formalizing documentation of policies and procedures and further evolving our accounting processes.

At the time the registration statement of which this prospectus forms a part is declared effective, we will be subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act, and the rules and regulations of Nasdaq. The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal controls over financial reporting. Commencing with our fiscal year ending December 31, 2021, we must perform system and process evaluation and testing of our internal controls over financial reporting to allow management to report on the effectiveness of our internal controls over financial reporting in our Form 10-K filing for that year, as required by Section 404 of the Sarbanes-Oxley Act. This will require that we incur substantial additional professional fees and internal costs to expand our accounting and finance functions and that we expend significant management efforts. Prior to this offering, we have never been required to test our internal controls within a specified period, and, as a result, we may experience difficulty in meeting these reporting requirements in a timely manner.

We may discover weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our financial statements. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

If we are not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner, or if we are unable to maintain proper and effective internal controls, we may not be able to produce timely and accurate financial statements. If that were to happen, the market price of our stock could decline and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities.

The measures we have taken to date, and actions we may take in the future, may not be sufficient to remediate the control deficiencies that led to our material weakness in our internal control over financial reporting or to prevent or avoid potential future material weaknesses. We may not have identified all material weaknesses. Moreover, our current controls and any new controls that we develop may become inadequate because of changes in conditions in our business. Further, weaknesses in our disclosure controls and internal control over financial reporting may be discovered in the future. Any failure to develop or maintain effective controls or any difficulties encountered in their implementation or improvement could harm our operating results or cause us to fail to meet our reporting obligations and may result in a restatement of our financial statements for prior periods, which could cause the price of our common stock to decline. In addition, if we are not able to continue to meet these requirements, we may not be able to remain listed on Nasdaq.

We will incur significant increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

As a public company, we will incur significant legal, accounting, and other expenses that we did not incur as a private company. We will be subject to the reporting requirements of the Exchange Act, which will require, among other things, that we file with the SEC annual, quarterly, and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act, as well as rules subsequently adopted by the SEC and Nasdaq to implement provisions of the Sarbanes-Oxley Act, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Further, in July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, was enacted. There are significant corporate governance and executive compensation related provisions in the Dodd-Frank Act that require the SEC to adopt additional rules

and regulations in these areas such as “say on pay” and proxy access. Emerging growth companies and smaller reporting companies are exempted from certain of these requirements, but we may be required to implement these requirements sooner than budgeted or planned and thereby incur unexpected expenses. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate.

We expect the rules and regulations applicable to public companies to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly. If these requirements divert the attention of our management and personnel from other business concerns, they could have a material adverse effect on our business, financial condition, and results of operations. The increased costs will decrease our net income or increase our net loss, and may require us to reduce costs in other areas of our business or increase the prices of our products or services. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain the same or similar coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

Sales of a substantial number of shares of our common stock by our existing stockholders in the public market could cause our stock price to fall.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our common stock in the public market after the lock-up and other legal restrictions on resale discussed in this prospectus lapse, the trading price of our common stock could decline. Based on shares of common stock outstanding as of June 15, 2020, upon the closing of this offering we will have outstanding a total of shares of common stock. Of these shares, only the shares of common stock sold in this offering by us, plus any shares sold upon exercise of the underwriters’ option to purchase additional shares, will be freely tradable without restriction in the public market immediately following this offering.

We expect that the lock-up agreements pertaining to this offering will expire 180 days from the date of this prospectus. After the lock-up agreements expire, up to an additional shares of common stock will be eligible for sale in the public market, of which shares are held by directors, executive officers and other affiliates and will be subject to volume limitations under Rule 144 under the Securities Act. In addition, shares of common stock that are either subject to outstanding options or reserved for future issuance under our employee benefit plans will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements, and Rule 144 and Rule 701 under the Securities Act. If these additional shares of common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

After this offering, the holders of shares of our common stock will be entitled to rights with respect to the registration of their shares under the Securities Act, subject to the 180-day lock-up agreements described above. See the section titled “Description of Capital Stock—Registration Rights.” Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares held by affiliates, as defined in Rule 144 under the Securities Act. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that we will need significant additional capital in the future to continue our planned operations, including conducting clinical trials, commercialization efforts, expanded research and development activities, and costs associated with operating a public company. To raise capital, we may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell common stock, convertible securities or other equity securities, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences and privileges senior to the holders of our common stock, including shares of common stock sold in this offering.

Pursuant to our 2020 Plan, our management is authorized to grant stock options to our employees, directors and consultants. Additionally, the number of shares of our common stock reserved for issuance under our 2020 Plan will automatically increase on January 1 of each year, beginning on January 1, 2021 (assuming the 2020 Plan becomes effective before such date) and continuing through and including January 1, 2030, by % of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares determined by our board of directors. In addition, pursuant to our ESPP, the number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year, beginning on January 1, 2021 (assuming the ESPP becomes effective in 2020) through January 1, 2030, by the lesser of (i) % of the total number of shares of our common stock outstanding on the last day of the calendar month before the date of the automatic increase, and (ii) shares; provided that before the date of any such increase, our board of directors may determine that such increase will be less than the amount set forth in clauses (i) and (ii). Unless our board of directors elects not to increase the number of shares available for future grant each year, our stockholders may experience additional dilution, which could cause our stock price to fall.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biopharmaceutical companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

Our failure to meet Nasdaq's continued listing requirements could result in a delisting of our common stock.

If, after listing, we fail to satisfy the continued listing requirements of Nasdaq, such as the corporate governance requirements or the minimum closing bid price requirement, Nasdaq may take steps to delist our common stock. Such a delisting would likely have a negative effect on the price of our common stock and would impair your ability to sell or purchase our common stock when you wish to do so. In the event of a delisting, we can provide no assurance that any action taken by us to restore compliance with listing requirements would allow our common stock to become listed again, stabilize the market price or improve the liquidity of our common stock, prevent our common stock from dropping below the Nasdaq minimum bid price requirement or prevent future non-compliance with the listing requirements of Nasdaq.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section titled "Use of Proceeds," and you will not have

the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our management might not apply our net proceeds in ways that ultimately increase the value of your investment. We intend to use the net proceeds we receive from this offering, together with our cash and cash equivalents, and the net proceeds of approximately $44.0 million from the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020, to fund our two Phase 2b clinical trials of tildacerfont in adult patients with classic CAH, NDA enabling and commercial readiness activities to market tildacerfont for adults with classic CAH in the United States and Europe, if approved, our research and development efforts for tildacerfont in children with classic CAH and other rare endocrine disorders, including in a subpopulation of females with a rare form of PCOS, as well as working capital and general corporate purposes. We may also use a portion of the remaining net proceeds and our existing cash and cash equivalents to in-license, acquire, or invest in complementary businesses, technologies, products, or assets. However, we have no current commitments or obligations to do so. The failure by our management to apply these funds effectively could harm our business. Pending their use, we may invest the net proceeds from this offering in short-term, investment-grade, interest-bearing instruments. These investments may not yield a favorable return to our stockholders. If we do not invest or apply the net proceeds from this offering in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

Anti-takeover provisions under our charter documents and Delaware law could delay or prevent a change of control which could limit the market price of our common stock and may prevent or frustrate attempts by our stockholders to replace or remove our current management.

Our amended and restated certificate of incorporation and amended and restated bylaws, which are to become effective immediately prior to the closing of this offering, contain provisions that could delay or prevent a change of control of our company or changes in our board of directors that our stockholders might consider favorable. Some of these provisions include:

- a board of directors divided into three classes serving staggered three-year terms, such that not all members of the board will be elected at one time;
- a prohibition on stockholder action through written consent, which requires that all stockholder actions be taken at a meeting of our stockholders;
- a requirement that special meetings of stockholders be called only by the chairman of the board of directors, the chief executive officer, the president, or by a majority of the total number of authorized directors;
- advance notice requirements for stockholder proposals and nominations for election to our board of directors;
- a requirement that no member of our board of directors may be removed from office by our stockholders except for cause and, in addition to any other vote required by law, upon the approval of not less than two-thirds of all outstanding shares of our voting stock then entitled to vote in the election of directors;
- a requirement of approval of not less than two-thirds of all outstanding shares of our voting stock to amend any bylaws by stockholder action or to amend specific provisions of our certificate of incorporation; and
- the authority of the board of directors to issue preferred stock on terms determined by the board of directors without stockholder approval and which preferred stock may include rights superior to the rights of the holders of common stock.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporate Law, which may prohibit certain business

combinations with stockholders owning 15% or more of our outstanding voting stock. These anti-takeover provisions and other provisions in our amended and restated certificate of incorporation and amended and restated bylaws could make it more difficult for stockholders or potential acquirors to obtain control of our board of directors or initiate actions that are opposed by the then-current board of directors and could also delay or impede a merger, tender offer, or proxy contest involving our company. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors of your choosing or cause us to take other corporate actions you desire. Any delay or prevention of a change of control transaction or changes in our board of directors could cause the market price of our common stock to decline.

Our amended and restated certificate of incorporation and amended and restated bylaws will provide that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation and amended and restated bylaws will provide that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on our behalf; (ii) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers, or other employees to us or our stockholders; (iii) any action or proceeding asserting a claim against us or any of our current or former directors, officers, or other employees, arising out of or pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws; (iv) any action or proceeding to interpret, apply, enforce, or determine the validity of our amended and restated certificate of incorporation or our amended and restated bylaws; (v) any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and (vi) any action asserting a claim against us or any of our directors, officers, or other employees governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants. These provisions would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation will further provide that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and the provisions may not be enforced by a court in those other jurisdictions.

These exclusive forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees and may discourage these types of lawsuits. Furthermore, the enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. If a court were to find either exclusive forum provision contained in our amended and restated certificate of incorporation or amended and restated bylaws to be inapplicable or unenforceable in an action, we

may incur further significant additional costs associated with resolving such action in other jurisdictions, all of which could seriously harm our business.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no securities or industry analysts commence coverage of our company, the trading price for our stock would likely be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who covers us downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price may decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements about us and our industry. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, business strategy, research and development costs; the anticipated timing, costs and conduct of our clinical trials for our only product candidate, tildacerfont; the timing and likelihood of regulatory filings and approvals for tildacerfont; our ability to commercialize tildacerfont, if approved; the pricing and reimbursement of tildacerfont, if approved; the potential benefits of strategic collaborations and our ability to enter into strategic arrangements; the timing and likelihood of success, plans and objectives of management for future operations; future results of anticipated product development efforts; our expected future financing needs; and expected uses of the net proceeds from this offering, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “expect,” “plan,” “anticipate,” “could,” “intend,” “target,” “project,” “contemplates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these terms or other similar expressions. The forward-looking statements in this prospectus are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this prospectus and are subject to a number of risks, uncertainties and assumptions described under the sections titled “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and elsewhere in this prospectus. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified and some of which are beyond our control, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties. Except as required by applicable law, we undertake no obligation to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise. You should, however, review the factors and risks we describe in the reports we will file from time to time with the SEC after the date of this prospectus. See the section titled “Where You Can Find Additional Information.”

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based on information available to us as of the date of this prospectus, and while we believe such information provides a reasonable basis for these statements, such information may be limited or incomplete. Our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain, and you are cautioned not to unduly rely on these statements.

MARKET, INDUSTRY AND OTHER DATA

We obtained the industry, market, and competitive position data used throughout this prospectus from our own internal estimates and research, as well as from independent market research, industry, and general publications and surveys, governmental agencies, and publicly available information in addition to research, surveys, and studies conducted by third parties. Internal estimates are derived from publicly available information released by industry analysts and third-party sources, our internal research, and our industry experience, and are based on assumptions made by us based on such data and our knowledge of our industry and market, which we believe to be reasonable. In some cases, we do not expressly refer to the sources from which this data is derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume that other data of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires. In addition, while we believe the industry, market, and competitive position data included in this prospectus is reliable and based on reasonable assumptions, such data involve risks and uncertainties and are subject to change based on various factors, including those discussed in the section titled “Risk Factors.” These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties or by us.

USE OF PROCEEDS

We estimate that we will receive net proceeds from this offering of approximately $ million (or approximately $ million if the underwriters' option to purchase additional shares of our common stock is exercised in full) based on the assumed initial public offering price of $ per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the net proceeds to us from this offering by approximately $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting underwriting discounts and commissions. Similarly, each increase (decrease) of 1.0 million shares in the number of shares of common stock offered by us would increase (decrease) the net proceeds to us from this offering by approximately $ million, assuming the initial public offering price of $ per share remains the same, and after deducting underwriting discounts and commissions.

The principal purposes of this offering are to increase our financial flexibility, create a public market for our common stock, and facilitate our future access to capital markets.

We currently intend to use the net proceeds from this offering as follows:

- approximately $ million to fund our two Phase 2b clinical trials of tildacerfont in adult patients with classic CAH;
- approximately $ million to fund NDA enabling and commercial readiness activities to market tildacerfont for adults with classic CAH in the United States and Europe, if approved;
- approximately $ million to fund our research and development efforts for tildacerfont in children with classic CAH and other rare endocrine disorders, including in a subpopulation of females with a rare form of PCOS; and
- any remaining proceeds for working capital and general corporate purposes.

We may also use a portion of the remaining net proceeds and our existing cash and cash equivalents to in-license, acquire, or invest in complementary businesses, technologies, products, or assets. However, we have no current commitments or obligations to do so.

We believe, based on our current operating plan, that the net proceeds from this offering, together with our cash and cash equivalents as of June 30, 2020, and the net proceeds of approximately $44.0 million from the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020, will be sufficient to fund our operations for at least the next 12 months. In particular, we expect that the net proceeds from this offering will allow us to fund our two Phase 2b clinical trials in adult patients with classic CAH, NDA enabling and commercial readiness activities to market tildacerfont for adults with classic CAH in the United States and Europe, if approved, our research and development efforts for tildacerfont in children with classic CAH and other rare endocrine disorders, including in a subpopulation of females with a rare form of PCOS, as well as working capital and general corporate purposes. However, our expected use of proceeds from this offering described above represents our current intentions based on our present plans and business condition. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the proceeds to be received upon the closing of this offering or the actual amounts that we will spend on the uses set forth above. The net proceeds from this offering, together with our cash and cash equivalents, and the net proceeds of approximately $44.0 million from the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible

preferred stock in August 2020, will not be sufficient for us to fund the commercialization of tildacerfont beyond an initial launch in adult patients with classic CAH, if approved, and to complete the development and commercialization of tildacerfont in additional indications.

The amounts and timing of our actual expenditures will depend on numerous factors, including the time and cost necessary to conduct our clinical trials, the results of our clinical trials and other factors described in the section titled “Risk Factors” in this prospectus, as well as the amount of cash used in our operations and any unforeseen cash needs. Therefore, our actual expenditures may differ materially from the estimates described above. We may find it necessary or advisable to use the net proceeds for other purposes, and we will have broad discretion in the application of the net proceeds.

We will have broad discretion over how to use the net proceeds to us from this offering. We intend to invest the net proceeds to us from the offering that are not used as described above in short-term, investment-grade, interest-bearing instruments.

DIVIDEND POLICY

We do not anticipate declaring or paying, in the foreseeable future, any cash dividends on our capital stock. We intend to retain all available funds and future earnings, if any, to fund the development and expansion of our business, and we do not anticipate paying any cash dividends in the foreseeable future. In addition, pursuant to the Loan Agreement with Silicon Valley Bank, we are prohibited from paying cash dividends without the prior written consent of Silicon Valley Bank and future debt instruments may materially restrict our ability to pay dividends on our common stock. Any future determination regarding the declaration and payment of dividends, if any, will be at the discretion of our board of directors and will depend on then-existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of June 30, 2020:

- on an actual basis;
- on a pro forma basis, giving effect to (i) the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020 and our receipt of approximately $44.0 million in aggregate net proceeds therefrom, (ii) the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of 101,333,330 shares of common stock and the related reclassification of the carrying value of our redeemable convertible preferred stock to permanent equity in connection with the closing of this offering, and (iii) the filing and effectiveness of our amended and restated certificate of incorporation that will be in effect immediately prior to the closing of this offering; and
- on a pro forma as adjusted basis, giving effect to (i) the pro forma adjustments set forth above and (ii) our receipt of net proceeds from the sale of shares of common stock in this offering at the assumed initial public offering price of $ per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma as adjusted information below is illustrative only, and our capitalization following the closing of this offering will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing.

You should read this table together with the sections titled “Selected Financial Data,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and “Description of Capital Stock” and our financial statements and related notes included elsewhere in this prospectus.

	As of June 30, 2020		
	Actual	Pro Forma	Pro Forma, As Adjusted
	(unaudited)		
	(in thousands, except share and per share amounts)		
Cash and cash equivalents	$ 36,601	$ 80,601	$
Term loan, including current portion	$ 4,463	$ 4,463	$
Series A redeemable convertible preferred stock, $0.0001 par value; 28,000,000 shares authorized, 28,000,000 shares issued and outstanding, actual, and no shares authorized or outstanding, pro forma and pro forma as adjusted	27,813	—	
Series B redeemable convertible preferred stock, $0.0001 par value; 73,333,330 shares authorized, 36,666,665 shares issued and outstanding, actual, and no shares authorized or outstanding, pro forma and pro forma as adjusted	43,648	—	
Stockholders’ equity (deficit):			
Preferred stock, $0.0001 par value; no shares authorized, issued, and outstanding, actual, and shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	
Common stock, $0.0001 par value; 130,518,922 shares authorized, 5,046,875 shares issued and outstanding, actual, shares authorized, 106,380,205 shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	1	11	
Additional paid-in capital	800	116,251	
Accumulated deficit	(42,916)	(42,916)	
Total stockholders’ equity (deficit)	$ (42,115)	$ 73,346	$
Total capitalization	$ 33,809	$ 77,809	$

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) each of our pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders’ equity (deficit) and total capitalization by approximately $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting underwriting discounts and commissions. Similarly, each increase (decrease) of 1.0 million shares in the number of shares common stock offered by us would increase (decrease) each of our pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders’ equity (deficit) and total capitalization by approximately $ million, assuming the assumed initial public offering price of $ per share remains the same, and after deducting underwriting discounts and commissions.

The number of shares of our common stock to be outstanding after this offering pro forma and pro forma as adjusted reflected in the table above is based on 106,380,205 shares of common stock outstanding as of June 30, 2020, after giving effect to the issuance and sale of 36,666,665 shares of

our Series B redeemable convertible preferred stock in August 2020 and the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into 101,333,330 shares of common stock in connection with the closing of this offering, and excludes:

- 9,563,822 shares of our common stock issuable upon the exercise of outstanding stock options as of June 30, 2020, with a weighted-average exercise price of $0.21 per share;
- 5,149,000 shares issuable upon the exercise of outstanding stock options granted subsequent to June 30, 2020, with a weighted-average exercise price of $0.47 per share
- 324,499 shares of our common stock issuable upon the exercise of a warrant outstanding as of June 30, 2020, with an exercise price of $0.22 per share;
- shares of our common stock reserved for future issuance under our 2020 Plan, which will become effective once the registration statement of which this prospectus forms a part is declared effective, as well as any automatic annual increases in the number of shares of common stock reserved for issuance under our 2020 Plan and any shares underlying outstanding stock awards granted under our 2016 Plan that expire or are repurchased, forfeited, cancelled or withheld, as more fully described in the section titled “Executive Compensation—Equity Incentive Plans”; and
- shares of our common stock reserved for issuance under our ESPP, which will become effective once the registration statement of which this prospectus forms a part is declared effective, and any automatic annual increases in the number of shares of common stock reserved for future issuance under our ESPP.

DILUTION

If you invest in our common stock in this offering, your interest will be diluted to the extent of the difference between the initial public offering price per share of common stock and the pro forma as adjusted net tangible book value per share immediately after this offering.

As of June 30, 2020, we had a historical net tangible book value (deficit) of $(42.1) million, or $(8.34) per share of common stock based on 5,046,875 shares of common stock outstanding as of such date. Our historical net tangible book value (deficit) per share represents total tangible assets less total liabilities and redeemable convertible preferred stock, which is not included within permanent equity, divided by the number of shares of common stock outstanding as of June 30, 2020.

Our pro forma net tangible book value as of June 30, 2020 was $73.3 million, or $0.69 per share. Pro forma net tangible book value per share represents the amount of our total tangible assets less our total liabilities, divided by 106,380,205 shares of common stock outstanding as of such date, after giving effect to (i) the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020 and our receipt of approximately $44.0 million in aggregate net proceeds therefrom, (ii) the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of 101,333,330 shares of common stock and the related reclassification of the carrying value of our redeemable convertible preferred stock to permanent equity in connection with the closing of this offering, and (iii) the filing and effectiveness of our amended and restated certificate of incorporation that will be in effect immediately prior to the closing of this offering.

After giving effect to the sale by us of shares of common stock in this offering at the assumed initial public offering price of $ per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2020 would have been $ million, or $ per share. This amount represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders and an immediate dilution in pro forma as adjusted net tangible book value of $ per share to investors purchasing common stock in this offering. We determine dilution by subtracting the pro forma as adjusted net tangible book value per share after this offering from the amount of cash paid by an investor for a share of common stock in this offering. The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of June 30, 2020	$(8.34)	
Pro forma increase in historical net tangible book value per share attributable to the pro forma transactions described in the preceding paragraphs	9.03	
Pro forma net tangible book value per share as of June 30, 2020	0.69	
Increase in pro forma as adjusted net tangible book value per share attributable to investors purchasing shares in this offering		
Pro forma as adjusted net tangible book value per share after this offering		
Dilution in pro forma as adjusted net tangible book value per share to investors purchasing shares in this offering		$

The dilution information discussed above is illustrative only and may change based on the actual initial public offering price and other terms of this offering. A $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) our pro forma as adjusted net tangible book value per share after this offering by $ per share and increase (decrease) the

dilution to investors purchasing shares in this offering by $ per share, in each case assuming the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting underwriting discounts and commissions. Similarly, each increase or decrease of 1.0 million shares in the number of shares of common stock offered by us would increase (decrease) our pro forma as adjusted net tangible book value by approximately $ per share and decrease (increase) the dilution to investors purchasing shares in this offering by approximately $ per share, in each case assuming the assumed initial public offering price of $ per share remains the same, and after deducting underwriting discounts and commissions.

If the underwriters exercise their option to purchase additional shares of common stock in full, the pro forma net tangible book value per share, as adjusted to give effect to this offering, would be $ per share, and the dilution in pro forma net tangible book value per share to investors in this offering would be $ per share.

The foregoing discussion and table above (other than the historical net tangible book value (deficit) calculation) are based on 106,380,205 shares of common stock outstanding as of June 30, 2020, after giving effect to the issuance and sale of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020 and the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into 101,333,330 shares of common stock in connection with the closing of this offering, and excludes:

- 9,563,822 shares of our common stock issuable upon the exercise of outstanding stock options as of June 30, 2020, with a weighted-average exercise price of $0.21 per share;
- 5,149,000 shares issuable upon the exercise of outstanding stock options granted subsequent to June 30, 2020, with a weighted-average exercise price of $0.47 per share
- 324,499 shares of our common stock issuable upon the exercise of a warrant outstanding as of June 30, 2020, with an exercise price of $0.22 per share;
- shares of our common stock reserved for future issuance under our 2020 Plan, which will become effective once the registration statement of which this prospectus forms a part is declared effective, as well as any automatic annual increases in the number of shares of common stock reserved for issuance under our 2020 Plan and any shares underlying outstanding stock awards granted under our 2016 Plan that expire or are repurchased, forfeited, cancelled or withheld, as more fully described in the section titled “Executive Compensation—Equity Incentive Plans”; and
- shares of our common stock reserved for issuance under our ESPP, which will become effective once the registration statement of which this prospectus forms a part is declared effective, and any automatic annual increases in the number of shares of common stock reserved for future issuance under our ESPP.

To the extent that any outstanding options or warrants are exercised or new options are issued under our stock-based compensation plans, or we issue additional shares of common stock in the future, there will be further dilution to investors participating in this offering.

SELECTED FINANCIAL DATA

The following tables set forth our selected financial data for the periods and as of the dates indicated. We derived our statements of operations data for the years ended December 31, 2018 and 2019, and our balance sheets data as of December 31, 2018 and 2019, from our audited financial statements included elsewhere in this prospectus. We have derived the selected statements of operations data for the six months ended June 30, 2019 and 2020, and the selected balance sheets data as of June 30, 2020 from our unaudited interim condensed financial statements included elsewhere in this prospectus. The unaudited interim condensed financial statements were prepared on a basis consistent with our audited financial statements and include, in management's opinion, all adjustments, consisting only of normal recurring adjustments that we consider necessary for a fair presentation of the financial information set forth in those statements. Our historical results are not necessarily indicative of the results that may be expected in the future and our interim results are not necessarily indicative of our expected results for the year ending December 31, 2020. You should read the following selected financial data in conjunction with our financial statements and related notes included elsewhere in this prospectus and the information in the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations."

	Year Ended December 31,		Six Months Ended June 30,	
	2018	2019	2019	2020
			(unaudited)	
Statements of Operations Data:	(in thousands, except share and per share amounts)			
Operating expenses:				
Research and development	$ 8,403	$ 10,817	$ 5,862	$ 10,272
General and administrative	1,569	2,290	1,547	1,250
Total operating expenses	9,972	13,107	7,409	11,522
Loss from operations	(9,972)	(13,107)	(7,409)	(11,522)
Interest expense	–	(65)	–	(166)
Other income, net	114	84	54	74
Net loss	$ (9,858)	$ (13,088)	$ (7,355)	$ (11,614)
Net loss per share, basic and diluted(1)	$ (2.01)	$ (2.62)	$ (1.47)	$ (2.32)
Weighted-average shares of common stock outstanding, basic and diluted(1)	4,912,955	5,000,000	5,000,000	5,013,908
Pro forma net loss per share, basic and diluted (unaudited)(1)		$ (0.41)		$ (0.19)
Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited)(1)		32,013,699		59,808,779

(1) See Note 12 to our annual financial statements and Note 9 to our interim condensed financial statements, each included elsewhere in this prospectus, for an explanation of the method used to calculate historical and pro forma net loss per share, basic and diluted, and the weighted-average number of shares of common stock used in the computation of the per share amounts.

	As of December 31,		As of June 30, 2020
	2018	2019	(unaudited)
	(in thousands)		
Balance Sheets Data:			
Cash and cash equivalents	$ 4,112	$ 3,924	$ 36,601
Working capital(1)	2,068	349	32,143
Total assets	4,775	4,692	38,968
Term loan, net of current portion	–	3,193	3,200
Total liabilities	2,705	7,516	9,622
Redeemable convertible preferred stock	19,872	27,813	71,461
Accumulated deficit	(18,214)	(31,302)	(42,916)
Total stockholders' equity (deficit)	(17,802)	(30,637)	(42,115)

(1) We define working capital as current assets less current liabilities. See our financial statements included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with the section titled "Selected Financial Data" and our financial statements and related notes included elsewhere in this prospectus. This discussion contains forward-looking statements that involve risks and uncertainties, including those described in the section titled "Special Note Regarding Forward-Looking Statements." Our actual results and the timing of selected events could differ materially from those discussed below. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those set forth under the section titled "Risk Factors."

Overview

We are a late-stage biopharmaceutical company focused on developing and commercializing novel therapies for rare endocrine disorders with significant unmet medical need. We are initially developing our wholly-owned product candidate, tildacerfont, as the potential first non-steroidal therapy to offer markedly improved disease control and reduce steroid burden for patients suffering from CAH. Classic CAH is a serious and life-threatening disease with no known novel therapies approved in approximately 50 years. In a 12-week Phase 2a proof-of-concept clinical trial, tildacerfont-treated patients suffering from classic CAH who had poor disease control despite being on standard of care therapy achieved approximately 80% reductions in hormones that are key indicators of poor disease control. Furthermore, 174 subjects across six clinical trials to date have been administered tildacerfont with no drug-related SAEs reported.

We have initiated a placebo-controlled, double-blind Phase 2b clinical trial in adult patients with classic CAH with poor disease control and anticipate topline results in the fourth quarter of 2021. We anticipate initiating a second Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020 and anticipate topline results in the first half of 2022. Based on post-hoc analyses of our clinical data to date, we have chosen to target two distinct groups of classic CAH patients with either good disease control or poor disease control. These two groups, which together make up the entire classic CAH patient population, have differing disease challenges centered on excessive adrenal androgen levels or excessive glucocorticoid usage, both of which have the potential to be addressed by treatment with tildacerfont, if approved. We believe our strategy may enable us to observe clinically meaningful outcomes with fewer total patients studied. Additionally, we believe these two clinical trials will provide sufficient patient exposures for our registrational safety database. Assuming positive results in the glucocorticoid reduction trial, we plan to meet with the FDA and comparable foreign regulatory authorities in 2022 to discuss registration.

Since our inception in November 2014, we have focused primarily on raising capital, establishing and protecting our intellectual property portfolio, organizing and staffing our company, business planning, and conducting preclinical and clinical development of, and manufacturing development for, our only product candidate, tildacerfont. We have no products approved for commercial sale and have not generated any revenue to date, and we continue to incur significant research and development and other expenses related to our ongoing operations. Our ability to generate product revenue sufficient to achieve profitability, if ever, will depend on the successful development of tildacerfont and any future product candidates, which we expect will take a number of years. We intend to build a highly specialized commercial organization to support the commercialization of tildacerfont, if approved, in the United States and Europe. Given a relatively small number of endocrinologists and specialists treat patients with classic CAH, we believe this market can be effectively addressed with a modest-sized targeted commercial sales force, alongside various high-touch patient initiatives. If tildacerfont is approved for additional indications, we plan to leverage our rare disorder commercial infrastructure and

expertise to efficiently address those patient populations. We may also either build a commercial infrastructure or opportunistically seek strategic collaborations to benefit from the resources of biopharmaceutical companies specialized in either relevant disease areas or geographies.

Since inception, we have incurred significant losses and negative cash flows from operations. During the year ended December 31, 2019, we incurred a net loss of $13.1 million and used $12.6 million of cash in operations. During the six months ended June 30, 2020, we incurred a net loss of $11.6 million and used $10.7 million of cash in operations. As of June 30, 2020, we had an accumulated deficit of $42.9 million, and we do not expect positive cash flows from operations for the foreseeable future. We expect to continue to incur significant and increasing losses for the foreseeable future, and our net losses may fluctuate significantly from period to period, depending on the timing of expenditures on our planned research and development activities.

Since inception, we have raised aggregate gross financing proceeds of $120.5 million, including $116.0 million from the sale of our redeemable convertible preferred stock and $4.5 million from the issuance of debt. As of June 30, 2020, we had cash and cash equivalents of $36.6 million. In February 2020, we agreed to issue and sell up to 73,333,330 shares of our Series B redeemable convertible preferred stock at $1.20 per share for aggregate proceeds of approximately $88.0 million to take place in two closings. In February 2020, pursuant to the initial closing, we issued and sold 36,666,665 shares of our Series B redeemable convertible preferred stock for approximately $43.6 million in net proceeds. In August 2020, pursuant to a secondary closing, we issued and sold an additional 36,666,665 shares of our Series B redeemable convertible preferred stock for approximately $44.0 million in net proceeds. We believe, based on our current operating plan, that the net proceeds from this offering, together with our cash and cash equivalents as of June 30, 2020, and the net proceeds of approximately $44.0 million from the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020, will be sufficient to fund our operations for at least the next 12 months. We have based this projection on assumptions that may be inaccurate and as a result, we may utilize our capital resources sooner than we expect. We expect our expenses will increase significantly in connection with our ongoing activities, as we:

- advance tildacerfont through our ongoing and planned Phase 2b clinical trials in adult patients with classic CAH;
- pursue regulatory approvals of tildacerfont in adult patients with classic CAH;
- advance clinical development of tildacerfont in additional indications, including pediatric classic CAH and a subpopulation of females with a rare form of PCOS;
- build a highly specialized commercial organization to support the commercialization of tildacerfont, if approved, in the United States and Europe;
- build a commercial infrastructure or opportunistically seek strategic collaborations to benefit from the resources of biopharmaceutical companies specialized in either relevant disease areas or geographies, if tildacerfont is approved for additional indications;
- identify additional indications and formulations for which to investigate tildacerfont in the future and expand our pipeline of product candidates;
- implement operational, financial, and management information systems;
- hire additional personnel;
- operate as a public company; and
- obtain, maintain, expand, and protect our intellectual property portfolio.

As a result, we will require substantial additional capital to develop tildacerfont and any future product candidates and fund operations for the foreseeable future. Until such time as we can generate sufficient revenue from product sales, if ever, we expect to finance our operations through a

combination of public or private equity offerings, debt financings, collaborations, and licensing arrangements. We may be unable to raise additional funds or to enter into such agreements or arrangements on favorable terms, or at all. Our ability to raise additional funds may be adversely impacted by potential worsening global economic conditions and the disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from the COVID-19 pandemic and actions taken to slow its spread, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates, and uncertainty about economic stability. If the equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly and more dilutive. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back, or discontinue the development or commercialization of tildacerfont or other research and development initiatives. We also could be required to seek collaborators for tildacerfont and any future product candidates at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available or relinquish or license on unfavorable terms our rights to tildacerfont and any future product candidates in markets where we otherwise would seek to pursue development or commercialization ourselves.

The amount and timing of our future funding requirements will depend on many factors including the pace and results of our development efforts. We cannot assure you that we will ever be profitable or generate positive cash flow from operating activities.

We rely, and expect to continue to rely, on third parties for the manufacture of tildacerfont for preclinical studies and clinical trials, as well as for commercial manufacture if tildacerfont obtains marketing approval. We also rely, and expect to continue to rely, on third parties to manufacture, package, label, store, and distribute tildacerfont, if marketing approval is obtained. We believe that this strategy allows us to maintain a more efficient infrastructure by eliminating the need for us to invest in our own manufacturing facilities, equipment, and personnel while also enabling us to focus our expertise and resources on the development of tildacerfont.

Our business has been and could continue to be adversely affected by the evolving COVID-19 pandemic. For example, the COVID-19 pandemic has resulted in and could result in delays to our clinical trials for numerous reasons including additional delays or difficulties in enrolling patients, diversion of healthcare resources away from the conduct of clinical trials, interruption or delays in the operations of the FDA or other regulatory authorities, and delays in clinical sites receiving the supplies and materials to conduct our clinical trials. At this time, the extent to which the COVID-19 pandemic impacts our business will depend on future developments, which are highly uncertain and cannot be predicted.

License Agreement with Eli Lilly and Company

Below is a summary of the key terms for our license agreement with Lilly, or the License Agreement. For a more detailed description, see the section titled “Business—License Agreement with Eli Lilly and Company” and Note 7 to our annual financial statements and Note 7 to our interim condensed financial statements, each included elsewhere in this prospectus.

In May 2016, we entered into the License Agreement with Lilly. Pursuant to the terms of the License Agreement, Lilly granted us an exclusive, worldwide, royalty bearing, sublicensable license under certain technology, patent rights, know-how, and proprietary materials, which we refer to collectively as the Lilly IP, and such patents, the Lilly Licensed Patents, relating to the CRF1 receptor antagonist compounds either listed in the License Agreement or covered by patent rights controlled by Lilly, which we refer to collectively as the Lilly Compounds, to research, develop, commercialize, make, have made, use, sell, offer to sell, and import the Lilly Compounds and any products containing an Lilly

Compound, including any products containing an Lilly Compound and one or more additional APIs other than an Lilly Compound, which we refer to collectively as the Lilly Licensed Products, for all pharmaceutical uses, including all diagnostic, therapeutic, and prophylactic uses, for human or animal administration. Lilly retained rights under the Lilly IP and the Lilly Licensed Patents for internal research purposes.

As partial consideration for the rights granted to us under the License Agreement, we made a one-time upfront payment to Lilly of $0.8 million. We are also required to pay Lilly up to an aggregate of $23.0 million upon the achievement of certain clinical and commercialization milestones with respect to the Lilly Licensed Products, only upon the first time each event occurs. In addition, we are required to pay Lilly tiered royalties on annual worldwide net sales of Lilly Licensed Products, with rates ranging from mid-single-digits to sub-teens, or the Lilly Royalties. The Lilly Royalties shall commence on a country-by-country basis on the date of the first commercial sale of Lilly Licensed Product in such country, and shall expire on a country-by-country basis on the latest of the following dates: (i) the tenth anniversary of the date of first commercial sale in such country, (ii) the expiration in such country of the last-to-expire Lilly Licensed Patent having a valid claim covering the manufacture, use, or sale of the Lilly Licensed Product as commercialized in such country, and (iii) the expiration of any data or regulatory exclusivity period for the Lilly Licensed Product in such country. Upon such expiration, the license granted to us with respect to such country shall be come fully paid-up, royalty-free, perpetual and irrevocable. In addition, the Lilly Royalties may be reduced upon the occurrence of certain events.

Components of Results of Operations

Operating Expenses

We classify operating expenses into two main categories: (i) research and development expenses and (ii) general and administrative expenses.

Research and Development Expenses

Our research and development expenses consist of external and internal expenses incurred in connection with our research activities and development programs.

These expenses include:

- external expenses, consisting of:
  - clinical trials—expenses associated with CROs engaged to manage and conduct clinical trials;
  - preclinical studies—expenses associated with preclinical studies performed by vendors; and
  - other research and development—expenses associated with contract manufacturing; labeling, packaging, and distribution of clinical trial supplies; and consulting.
- internal expenses, consisting of personnel, including expenses for salaries, bonuses, benefits, stock-based compensation, and allocation of certain expenses.

To date, most of these expenses have been incurred to advance tildacerfont. We expect that significant additional spending will be required to progress tildacerfont through clinical development and regulatory approval. These expenses will primarily consist of expenses for the administration of clinical trials as well as manufacturing costs for clinical material supply.

Research and development expenses are recognized as they are incurred. If deposits are required by external vendors, a portion of the deposit is included as a prepaid expense until sufficient progress has occurred to amortize the deposit to expense in the statement of operations.

At this time, we cannot reasonably estimate or know the nature, timing, and estimated costs of the efforts that will be necessary to complete the development of, and obtain regulatory approval for, tildacerfont or any of our future product candidates. We expect our research and development expenses to increase significantly in the foreseeable future as we continue to invest in research and development activities related to developing tildacerfont, as tildacerfont continues to advance into later stages of development for the treatment of classic CAH in adult patients, as we conduct clinical trials of tildacerfont in additional indications beyond classic CAH in adult patients, as we seek regulatory approvals for tildacerfont, and incur expenses associated with hiring additional personnel to support our research and development efforts. The process of conducting the necessary clinical research to obtain regulatory approval is costly and time-consuming, the successful development of tildacerfont is highly uncertain, and we may never succeed in achieving regulatory approval for tildacerfont in classic CAH in adult patients or other indications.

General and Administrative Expenses

General and administrative expenses consist primarily of personnel-related costs (including salaries, bonuses, benefits, and stock-based compensation expense) for personnel in executive, finance, and other administrative functions. General and administrative expenses also include legal fees, professional fees paid for accounting, auditing, consulting, tax, and investor relations services, insurance costs, and facility costs not otherwise included in research and development expenses, and following this offering, will include public company expenses such as costs associated with compliance with the rules and regulations of the SEC and those of the Nasdaq listing rules.

We expect that our general and administrative expenses will continue to increase significantly in the foreseeable future as additional administrative personnel and services are required to manage these functions of a public company, as we advance tildacerfont through our ongoing and planned clinical trials, and as we identify additional indications and formulations for which to investigate tildacerfont in the future and expand our pipeline of product candidates.

Interest Expense

Interest expense consists of interest incurred and non-cash amortization of debt discount and issuance costs in connection with the Term Loan with Silicon Valley Bank.

Other Income, Net

Other income, net primarily consists of interest income earned on our cash and cash equivalents.

Results of Operations

Comparisons of the Six Months Ended June 30, 2019 and 2020

The following table summarizes our results of operations for the periods presented (in thousands):

	Six Months Ended June 30,		
	2019	2020	Change
Operating expenses:			
Research and development	$ 5,862	$ 10,272	$ 4,410
General and administrative	1,547	1,250	(297)
Total operating expenses	7,409	11,522	4,113
Loss from operations	(7,409)	(11,522)	(4,113)
Interest expense	–	(166)	(166)
Other income, net	54	74	20
Net loss	$(7,355)	$(11,614)	$(4,259)

Research and Development Expenses

Research and development expenses were $5.9 million for the six months ended June 30, 2019, compared to $10.3 million for the six months ended June 30, 2020. Research and development expenses increased primarily because clinical development, manufacturing, and personnel costs increased in 2020 in connection with our personnel growth and progressing clinical development. The following table sets forth the primary external and internal research and development expenses for the periods presented below (in thousands).

	Six Months Ended June 30,		
	2019	2020	Change
External expenses:			
Clinical development	$2,815	$ 5,495	$2,680
Manufacturing	680	1,612	932
Non-clinical	699	636	(63)
Other research and development	184	247	63
Internal expenses:			
Personnel	1,423	2,219	796
Equipment, depreciation, and facility	61	63	2
Total research and development expenses	$5,862	$10,272	$4,410

General and Administrative Expenses

General and administrative expenses were $1.5 million for the six months ended June 30, 2019, compared to $1.3 million for the six months ended June 30, 2020. General and administrative expenses decreased slightly period over period, with a decrease of $0.2 million in market research, travel, and office-related expense.

Interest Expense

Interest expense was zero for the six months ended June 30, 2019, compared to $0.2 million for the six months ended June 30, 2020. The increase was due to interest expense incurred in 2020 on the Term Loan with Silicon Valley Bank.

Other Income, Net

Other income, net was comparable for the six months ended June 30, 2019 and 2020.

Comparisons of the Years Ended December 31, 2018 and 2019

The following table summarizes our results of operations for the periods presented (in thousands):

	Year Ended December 31,		
	2018	2019	Change
Operating expenses:			
Research and development	$ 8,403	$ 10,817	$ 2,414
General and administrative	1,569	2,290	721
Total operating expenses	9,972	13,107	3,135
Loss from operations	(9,972)	(13,107)	(3,135)
Interest expense	–	(65)	(65)
Other income, net	114	84	(30)
Net loss	$(9,858)	$(13,088)	$(3,230)

Research and Development Expenses

Research and development expenses were $8.4 million for the year ended December 31, 2018, compared to $10.8 million for the year ended December 31, 2019. Research and development expenses increased primarily because additional full-time research and development personnel were hired at the end of 2018 and drug manufacturing costs increased. These increases were partially offset by a decline in non-clinical expenses due to completion of certain toxicology studies. The following table sets forth the primary external and internal research and development expenses for the periods presented below (in thousands).

	Year Ended December 31,		
	2018	2019	Change
External expenses:			
Clinical development	$3,560	$ 4,323	$ 763
Manufacturing	1,262	1,940	678
Non-clinical	1,844	707	(1,137)
Other research and development	689	412	(277)
Internal expenses:			
Personnel	1,004	3,301	2,297
Equipment, depreciation, and facility	44	134	90
Total research and development expenses	$8,403	$10,817	$ 2,414

General and Administrative Expenses

General and administrative expenses were $1.6 million for the year ended December 31, 2018, compared to $2.3 million for the year ended December 31, 2019. The overall increase in general and administrative expenses was primarily related to an increase of $0.5 million in professional fees and an increase of $0.3 million in personnel costs, partially offset by a decrease of $0.1 million in market research costs.

Interest Expense

Interest expense was zero for the year ended December 31, 2018, compared to $0.1 million for the year ended December 31, 2019. The increase was due to interest expense incurred in 2019 on the Term Loan with Silicon Valley Bank.

Other Income, Net

Other income, net was comparable for the years ended December 31, 2018 and 2019.

Liquidity and Capital Resources

Liquidity

Since our inception, we have not generated any revenue from product sales and have incurred significant operating losses and negative cash flows from operations. We anticipate that we will continue to incur net losses for the foreseeable future. As of June 30, 2020, we had an accumulated deficit of $42.9 million. As of June 30, 2020 we had cash and cash equivalents of $36.6 million. In February 2020, we agreed to issue and sell up to 73,333,330 shares of our Series B redeemable convertible preferred stock at $1.20 per share for aggregate proceeds of approximately $88.0 million to take place in two closings. In February 2020, pursuant to the initial closing, we issued and sold 36,666,665 shares of our Series B redeemable convertible preferred stock for approximately $43.6 million in net proceeds. In August 2020, pursuant to a secondary closing, we issued and sold an additional 36,666,665 shares of our Series B redeemable convertible preferred stock for approximately $44.0 million in net proceeds. We believe, based on our current operating plan, that the net proceeds from this offering, together with our cash and cash equivalents as of June 30, 2020, and the net proceeds of approximately $44.0 million from the issuance and sale of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020, will be sufficient to fund our operations for at least the next 12 months.

Loan Agreement

In September 2019, we entered into the Loan Agreement with Silicon Valley Bank providing for the Term Loan. Pursuant to the Loan Agreement, we requested $2.5 million from the first tranche in connection with the entry into the Loan Agreement, which is currently outstanding, and we drew the second tranche of $2.0 million in December 2019, which is currently outstanding. As of June 30, 2020, we had $4.5 million outstanding under the Loan Agreement.

In April 2020, we and Silicon Valley Bank entered into the Deferral Agreement whereby we and Silicon Valley Bank agreed to extend the repayment dates of all monthly payments of principal due and the maturity date with respect to the Term Loan by six months. Pursuant to the Deferral Agreement, principal payments will commence in January 2021 and the Term Loan will mature in September 2022.

The Loan Agreement, as amended by the Deferral Agreement, provides for monthly cash interest-only payments through December 31, 2020. On the first day of the end of the interest-only period, we will be required to repay the Term Loan in equal monthly installments of principal plus interest through maturity. Outstanding principal balances under the Term Loan bear interest at a floating per annum rate equal to the greatest of: (i) 1% below the prime rate, (ii) 4.25%, or (iii) 1% below the prime rate as of September 23, 2019.

We may prepay amounts outstanding under the Term Loan at any time provided certain notification conditions are met, in which case, all outstanding principal plus accrued and unpaid interest, the end of term payment, a prepayment fee between 1% and 3% of the principal amount of the first and second tranches, and any bank expenses become due and payable.

The Loan Agreement contains certain covenants that limit our ability to engage in certain transactions that may be in our long-term best interest, including entering into a change in control

transaction. While we have not previously breached and are currently in compliance with the covenants contained in the Loan Agreement, we may breach these covenants in the future. Our ability to comply with these covenants may be affected by events and factors beyond our control. In the event that we breach one or more covenants, Silicon Valley Bank may choose to declare an event of default and require that we immediately repay all amounts outstanding under the Loan Agreement, terminate any commitment to extend further credit and foreclose on the collateral. The occurrence of any of these events could have a material adverse effect on our business, financial condition and results of operations.

In connection with the first and second tranches under the Loan Agreement, we issued a warrant to purchase up to an aggregate of 324,499 shares of common stock at $0.22 per share. We determined the initial fair value of the warrant to be $0.1 million using the Black-Scholes option-pricing model. The fair value of the warrant was recorded to equity and also as a debt discount, which is amortized to interest expense using the effective interest method over the term of the Term Loan. The warrant has a ten-year term and expires on September 23, 2029.

Funding Requirements

To date, we have not generated any revenue. We do not expect to generate any meaningful revenue unless and until we obtain regulatory approval and commercialize tildacerfont or any future product candidates, and we do not know when, or if at all, that will occur. We will continue to require additional capital to develop tildacerfont and fund operations for the foreseeable future. Our primary uses of cash are to fund our operations, which consist primarily of research and development expenses related to our clinical development programs, and to a lesser extent, general and administrative expenses. We expect our expenses to continue to increase in connection with our ongoing activities as we continue to advance tildacerfont through clinical development and regulatory approval. In addition, upon the completion of this offering, we expect to incur additional costs associated with operating as a public company.

We may seek to raise capital through equity or debt financings, collaborative agreements or other arrangements with other companies, or through other sources of financing. Adequate additional funding may not be available to us on acceptable terms or at all. Our failure to raise capital as and when needed could have a negative impact on our financial condition and our ability to pursue our business strategies. We anticipate that we will need to raise substantial additional capital, the requirements of which will depend on many factors, including:

- the progress, costs, trial design, results of, and timing of our ongoing and planned clinical trials of tildacerfont;
- the outcome, costs and timing of seeking and obtaining FDA and any other regulatory approvals;
- the number and characteristics of product candidates that we may pursue;
- our ability to manufacture sufficient quantities of tildacerfont;
- our need to expand our research and development activities;
- the costs associated with manufacturing tildacerfont and establishing commercial supplies and sales, marketing, and distribution capabilities;
- the costs associated with securing and establishing commercialization;
- the costs of acquiring, licensing, or investing in product candidates;
- our ability to maintain, expand, and defend the scope of our intellectual property portfolio, including the amount and timing of any payments we may be required to make, or that we may receive, in connection with the licensing, filing, prosecution, defense, and enforcement of any patents or other intellectual property rights;

- our need and ability to retain key management and hire scientific, technical, business, and medical personnel;
- the effect of competing products and product candidates and other market developments;
- the timing, receipt, and amount of sales from tildacerfont and any future product candidates, if approved;
- our need to implement additional internal systems and infrastructure, including financial and reporting systems;
- the economic and other terms, timing of, and success of any collaboration, licensing, or other arrangements which we may enter in the future; and
- the effects of the disruptions to and volatility in the credit and financial markets in the United States and worldwide from the COVID-19 pandemic.

If we raise additional funds by issuing equity securities, our stockholders will experience dilution. If we raise additional capital through debt financing, we may be subject to covenants that restrict our operations including limitations on our ability to incur liens or additional debt, pay dividends, repurchase our common stock, make certain investments, and engage in certain merger, consolidation, or asset sale transactions. Any debt financing or additional equity that we raise may contain terms that are not favorable to us or our stockholders. If we are unable to raise additional funds when needed, we may be required to delay, reduce, or terminate some or all of our development programs and clinical trials. We may also be required to sell or license to others rights to tildacerfont and any future product candidates in certain territories or indications that we would prefer to develop and commercialize ourselves.

Summary Statement of Cash Flows

The following table sets forth the primary sources and uses of cash, cash equivalents and restricted cash for the periods presented below (in thousands):

	Year Ended December 31,		Six Months Ended June 30,	
	2018	2019	2019	2020
Net cash used in operating activities	$ (8,570)	$(12,617)	$ (8,430)	$(10,656)
Net cash used in investing activities	–	(4)	(3)	(7)
Net cash provided by financing activities	–	12,433	7,941	43,556
Net increase (decrease) in cash, cash equivalents and restricted cash	$ (8,570)	$ (188)	$ (492)	$ 32,893

Cash Used in Operating Activities

For the six months ended June 30, 2019, net cash used in operating activities was $8.4 million, which consisted of a net loss of $7.4 million and a net change of $1.2 million in our net operating assets and liabilities, partially offset by $0.1 million in non-cash charges. The net change in our operating assets and liabilities was primarily due to a net decrease in accounts payable and accrued expenses of $0.8 million and a net increase in prepaid expenses and other assets of $0.4 million. The non-cash charges of $0.1 million primarily consisted of stock-based compensation expense.

For the six months ended June 30, 2020, net cash used in operating activities was $10.7 million, which consisted of a net loss of $11.6 million, partially offset by and a net change of $0.8 million in our net operating assets and liabilities and by $0.1 million in non-cash charges. The net change in our operating assets and liabilities was primarily due to a net increase in accounts payable and accrued expenses of $2.3 million and a net increase in other liabilities of $0.1 million, partially offset by a net increase in prepaid expenses of $1.2 million and a $0.4 net decrease in accrued compensation. The

non-cash charges of $0.1 million primarily consisted of stock-based compensation expense and depreciation and amortization expense.

In 2018, net cash used in operating activities was $8.6 million, which consisted of a net loss of $9.9 million, partially offset by a net change of $1.2 million in our net operating assets and liabilities and $0.1 million in non-cash charges. The net change in our operating assets and liabilities was primarily due to a net increase in accounts payable and accrued expenses of $1.8 million resulting from an increase in research and development activities and net increase in accrued compensation of $0.1 million, partially offset by an increase in prepaid expenses and other assets of $0.7 million primarily associated with prepayments made for ongoing research and development activities conducted by third-party service providers. The non-cash charges of $0.1 million primarily consisted of stock-based compensation expense.

In 2019, net cash used in operating activities was $12.6 million, which consisted of a net loss of $13.1 million, partially offset by a net change of $0.3 million in our net operating assets and liabilities and $0.2 million in non-cash charges. The net change in our operating assets and liabilities was primarily due to a net increase in accrued compensation of $0.6 million, partially offset by a net decrease in accounts payable and accrued expenses of $0.2 million and a net increase in prepaid expenses of $0.1 million. The non-cash charges of $0.2 million primarily consisted of stock-based compensation expense and depreciation expense.

Cash Used in Investing Activities

For the six months ended June 30, 2019 and 2020, cash used in investing activities was less than $0.1 million and related to the purchase of property and equipment.

In 2018, no cash was used in or provided by investing activities.

In 2019, cash used in investing activities was less than $0.1 million and related to the purchase of property and equipment.

Cash Provided by Financing Activities

For the six months ended June 30, 2019, cash provided by financing activities was $7.9 million, consisting primarily of net proceeds from the issuance and sale of Series A redeemable convertible preferred stock.

For the six months ended June 30, 2020, cash provided by financing activities was $43.6 million, consisting primarily of net proceeds from the issuance and sale of Series B redeemable convertible preferred stock.

In 2018, no cash was used in or provided by financing activities.

In 2019, cash provided by financing activities was $12.4 million, consisting primarily of net proceeds from the issuance and sale of Series A redeemable convertible preferred stock and debt.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations and commitments as of December 31, 2019 (in thousands):

	Payments Due by Period				
	Less than 1 Year	1 to 3 Years	4 to 5 Years	More than 5 Years	Total
Operating lease obligations(1)	$ 26	$ –	$ –	$ –	$ 26
Long-term debt obligations(2)	1,468	3,576	–	–	5,044
Total:	$ 1,494	$3,576	$ –	$ –	$5,070

(1) Amounts in table reflect payments due for our lease of office space in Daly City, California under our office lease agreement, which expires in late 2025.

(2) Amounts in table reflect the contractually required principal, final payment and interest payments payable under the Loan Agreement, which does not take into account the Deferral Agreement entered into in April 2020. For purposes of this table, interest due under the Loan Agreement was calculated using an interest rate of 4.25% per annum, which as the interest rate in effect as of December 31, 2019.

In February 2020, we entered into a non-cancelable operating lease for an office facility. The total aggregate lease payments over the 63-month lease term is approximately $2.3 million. The lease term has not yet commenced as of June 30, 2020.

We enter into contracts in the normal course of business with third-party contract manufacturing organizations and CROs for clinical trials, non-clinical studies and testing, and other services and products for operating purposes. These contracts are generally cancelable by us upon prior written notice after certain period. Payments due upon cancellation consist only of payments for services provided or expenses incurred, including noncancelable obligations of our service providers, up to the date of cancellation. Accordingly, these payments are not included in the preceding table as the amount and timing of such payments are not known.

We have also entered into the License Agreement under which we are obligated to make aggregate milestone payments upon the achievement of specified milestones as well as royalty payments. We have not included future payments under the License Agreement in the table above since the payment obligations under the License Agreement are contingent upon future events, such as our achievement of specified milestones or generating product sales. As of December 31, 2019, we were unable to estimate the timing or likelihood of achieving these milestones or generating future product sales. See the section titled “License Agreement with Eli Lilly and Company” above.

Off-Balance Sheet Arrangements

Since the date of our incorporation, we have not engaged in any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Critical Accounting Policies, Significant Judgments and Use of Estimates

Our financial statements have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities and expenses, as well as the related disclosure of contingent assets and liabilities as of the date of the financial statements. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources.

Actual results may differ from these estimates under different assumptions or conditions. We believe that the accounting policies discussed below are critical to understanding our historical and

future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

While our significant accounting policies are described in the notes to our financial statements, we believe that the following critical accounting policies are most important to understanding and evaluating our reported financial results.

Research and Development Expenses

Research and development costs are expensed as incurred. Research and development expenses include personnel costs related to research and development activities, materials costs, external clinical drug product manufacturing costs, clinical trial costs, outside services costs, repair, maintenance, and depreciation costs for research and development equipment, as well as facility costs for laboratory space used for research and development activities.

Accrued Research and Development Expenses

We record accruals for estimated costs of research, preclinical, and manufacturing development, within accrued expenses which are significant components of research and development expenses. A substantial portion of our ongoing research and development activities is conducted by third-party service providers, including CROs. Our contracts with the CROs generally include fees such as initiation fees, investigator grants, clinical safety, data management, laboratory expenses, project management, and pass-through expenses. The financial terms of these contracts are subject to negotiations, which vary from contract to contract and may result in payment flows that do not match the periods over which materials or services are provided to us under such contracts. We accrue the costs incurred under agreements with these third parties based on estimates of actual work completed in accordance with the respective agreements. We determine the estimated costs through discussions with internal personnel and external service providers as to the progress, or stage of completion or actual timeline (start-date and end-date) of the services and the agreed-upon fees to be paid for such services. Payments made to third parties under these arrangements in advance of the performance of the related services by the third parties are recorded as prepaid expenses until the services are rendered.

If the actual timing of the performance of services or the level of effort varies from the estimate, we adjust accrued expenses or prepaid expenses accordingly, which impact research and development expenses. Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period.

Payments associated with licensing agreements to acquire exclusive licenses to develop, use, manufacture and commercialize products that have not reached technological feasibility and do not have alternate commercial use are expensed as incurred.

Redeemable Convertible Preferred Stock

We record all shares of redeemable convertible preferred stock at their respective fair values on the dates of issuance, net of issuance costs. The redeemable convertible preferred stock is recorded outside of permanent equity because while it is not mandatorily redeemable, in certain events considered not solely within our control, such as a merger, acquisition, or sale of all or substantially all of our assets, each of which we refer to as a deemed liquidation event, the redeemable convertible preferred stock will become redeemable at the option of the holders of at least a majority of the then outstanding such shares. We have not adjusted the carrying values of the redeemable convertible preferred stock to its liquidation preference because a deemed liquidation event obligating us to pay

the liquidation preferences to holders of shares of redeemable convertible preferred stock is not probable of occurring. Subsequent adjustments to the carrying values to the liquidation preferences will be made only when it becomes probable that such a deemed liquidation event will occur.

Stock-Based Compensation Expense

We account for stock-based compensation expense by measuring and recognizing compensation expense for all share-based awards made to employees and non-employees based on estimated grant-date fair values. We use the straight-line method to allocate compensation cost to reporting periods over the requisite service period, which is generally the vesting period. We recognize actual forfeitures by reducing the stock-based compensation expense in the same period as the forfeitures occur. We estimate the fair value of share-based awards to employees and non-employees using the Black-Scholes option-pricing valuation model. The Black-Scholes model requires the input of subjective assumptions, including fair value of common stock, expected term, expected volatility, risk-free interest rate, and expected dividend yield, which are described in greater detail below.

Estimating the fair value of equity-settled awards as of the grant date using the Black-Scholes option pricing model is affected by assumptions regarding several complex variables. Changes in the assumptions can materially affect the fair value and ultimately how much stock-based compensation expense is recognized. These inputs are subjective and generally require significant analysis and judgment to develop. These inputs are as follows:

- *Fair value of common stock*—Historically, as there has been no public market for our common stock, the fair value of our common stock was determined by our board of directors based in part on valuations of our common stock prepared by a third-party valuation firm. See the subsection titled “Common Stock Valuations” below.
- *Expected term*—The expected term represents the period that our options granted are expected to be outstanding and is determined using the simplified method for employees (based on the mid-point between the vesting date and the end of the contractual term) and is based on the remaining contractual term for non-employees. We have very limited historical information to develop reasonable expectations about future exercise patterns and post-vesting employment termination behavior for our stock option grants.
- *Expected volatility*—Since we are a privately-held company and do not have any trading history for our common stock, the expected volatility was estimated based on the average volatility for comparable publicly traded biopharmaceutical companies over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their similar size, life cycle stage, or area of specialty. We will continue to apply this process until enough historical information regarding the volatility of our own stock price becomes available.
- *Risk-free interest rate*—The risk-free interest rate is based on the U.S. constant maturity rates with remaining terms similar to the expected term of the options.
- *Expected dividend yield*—We have never paid dividends on our common stock and have no plans to pay dividends on our common stock. Therefore, we used an expected dividend yield of zero.

In June 2018, the Financial Accounting Standards Board issued Accounting Standards Update, or ASU, No. 2018-07, *Compensation—Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting* (ASU 2018-07), to align the accounting for share-based payment awards issued to employees and nonemployees, particularly with regard to the measurement date and the impact of performance conditions. The new guidance requires equity-classified share based payment awards issued to nonemployees to be measured on the grant date, instead of being remeasured through the performance completion date under the current guidance. For public entities, ASU 2018-07 is effective for fiscal years beginning after December 15, 2018. This update supersedes

previous guidance for equity-based payments to nonemployees under Subtopic 505-50, Equity—Equity-Based Payments to Non-Employees. Impact of share-based payments to non-employees has been immaterial for all periods presented. We early adopted ASU 2018-07 effective January 1, 2018 for measurement of the non-statutory stock options granted to consultants. The adoption did not have a material impact on our financial statements. For options granted to non-employee consultants, the fair value of these options is also measured using the Black-Scholes option-pricing model reflecting the same assumptions as applied to employee options in each of the reported periods, other than the expected term which is assumed to be the remaining contractual life of the option.

We will continue to use judgment in evaluating the expected volatility, expected terms, and interest rates utilized for our stock-based compensation expense calculations on a prospective basis.

Determination of Fair Value of Common Stock

As there has been no public market for our common stock to date, the estimated fair value of our common stock has been determined by our board of directors as of the date of each option grant, with input from management, considering contemporaneous independent third-party valuations of common stock, and our board of directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These independent third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*, or the Practice Aid. The methodology to determine the fair value of our common stock included estimating the fair value of the enterprise using a market approach, which estimates the fair value of a company by including an estimation of the value of the business based on guideline public companies under a number of different scenarios. The assumptions used to determine the estimated fair value of our common stock are based on numerous objective and subjective factors, combined with management judgment, including external market conditions affecting the pharmaceutical and biotechnology industry and trends within the industry; our stage of development; the rights, preferences and privileges of our redeemable convertible preferred stock relative to those of our common stock; the prices at which we sold shares of our redeemable convertible preferred stock; our financial condition and operating results, including our levels of available capital resources; the progress of our research and development efforts and business strategy; the timing and probability of future financings; equity market conditions affecting comparable public companies; general U.S. market conditions; and the lack of marketability of our common stock.

The Practice Aid identifies various available methods for allocating enterprise value across classes and series of capital stock to determine the estimated fair value of common stock at each valuation date. In accordance with the Practice Aid, we considered the following methods:

- Option Pricing Method, or OPM. Under the OPM, shares are valued by creating a series of call options with exercise prices based on the liquidation preferences and conversion terms of each equity class. The estimated fair values of the preferred and common stock are inferred by analyzing these options. This method is appropriate to use when the range of possible future outcomes is so difficult to predict that estimates would be highly speculative, and dissolution or liquidation is not imminent.
- Probability-Weighted Expected Return Method, or PWERM. The PWERM is a scenario-based analysis that estimates value per share based on the probability-weighted present value of expected future investment returns, considering each of the possible outcomes available to us, as well as the economic and control rights of each share class.

Based on our early stage of development, the difficulty in predicting the range of possible outcomes at the time of the valuations, and other relevant factors, we determined that an OPM was the

most appropriate method for allocating our enterprise value to determine the estimated fair value of our common stock for valuations prior to June 30, 2020. For valuations subsequent to June 30, 2020, we incorporated the PWERM into the valuation process as a result of the increasing likelihood of the occurrence of certain discrete events, such as an initial public offering, as a result of improving market conditions and receptivity of the market to initial public offerings. In the PWERM, we established our enterprise value utilizing a valuation multiple based on precedent initial public offerings. The enterprise value determined under the PWERM and OPM was weighted according to our board of directors' estimate of the probability of the occurrence of a certain discrete event as of the valuation date. The resulting equity value for the common stock was then divided by the number of shares of common stock outstanding at the date of the valuation to derive a per share value on a non-marketable basis. In order to determine the fair value of our common stock on a marketable basis, we then applied a discount for lack of marketability which we derived based on inputs including a company-specific volatility rate, a term equal to the expected time to a future liquidity event and a risk free rate equal to the yield on treasuries of similar duration.

Application of these approaches involves the use of estimates, judgment, and assumptions that are highly complex and subjective, such as those regarding our expected future revenue, expenses, and cash flows, discount rates, market multiples, the selection of comparable companies, and the probability of future events. Changes in any or all of these estimates and assumptions, or the relationships between those assumptions, impact our valuations as of each valuation date and may have a material impact on the valuation of common stock. The assumptions underlying these valuations represent our management's best estimate, which involve inherent uncertainties and the application of management judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, our stock-based compensation expense could be materially different. Following the closing of the offering, the fair value of our common stock will be determined based on the quoted market price of our common stock.

Following the completion of this offering, our board of directors intends to determine the fair value of our common stock based on the closing price of our common stock on the date of grant.

JOBS Act

We are an "emerging growth company" as defined in the JOBS Act. The JOBS Act permits emerging growth companies to take advantage of an extended transition period to comply with new or revised accounting standards, delaying the adoption of these accounting standards until they would apply to private companies. We have elected to use this extended transition period under the JOBS Act until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

We could be an emerging growth company until the last day of the fiscal year ending after the fifth anniversary of this offering, although circumstances could cause us to lose that status earlier, including if we become a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act or if we have total annual gross revenue of $1.07 billion or more during any fiscal year before that time, in which cases we would no longer be an emerging growth company as of the following December 31 or, if we issue more than $1.0 billion in non-convertible debt during any three year period before that time, we would cease to be an emerging growth company immediately.

Recently Adopted Accounting Pronouncements

See Note 2 to our annual financial statements and Note 2 to our interim condensed financial statements, each included elsewhere in this prospectus, for more information about recent accounting

pronouncements, the timing of their adoption, and our assessment, to the extent we have made one yet, of their potential impact on our financial condition and our results of operations.

Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk

Our cash and cash equivalents as of June 30, 2020 consisted of readily available checking and money market funds. Our primary exposure to market risk is interest income sensitivity, which is affected by changes in the general level of U.S. interest rates. However, because of the short-term nature of the instruments in our portfolio, a sudden change in market interest rates would not be expected to have a material impact on our financial condition and/or results of operations. We do not believe that our cash or cash equivalents have significant risk of default or illiquidity. While we believe our cash and cash equivalents do not contain excessive risk, we cannot provide absolute assurance that in the future our investments will not be subject to adverse changes in market value. In addition, we maintain significant amounts of cash and cash equivalents at one financial institution that is in excess of federally insured limits.

Additionally, the interest rate for borrowings under the Loan Agreement is variable. A hypothetical 10% relative change in interest rates during any of the periods presented would not have had a material impact on our financial statements. We do not currently engage in hedging transactions to manage our exposure to interest rate risk.

Foreign Currency Exchange Risk

To date, foreign currency transaction gains and losses have not been material to our financial statements, and we have not had a formal hedging program with respect to foreign currency. Our expenses are generally denominated in U.S. dollars. Our operations may be subject to fluctuations in foreign currency exchange rates in the future. A hypothetical 10% change in exchange rates during any of the periods presented would not have had a material impact on our financial statements included elsewhere in this prospectus.

Effects of Inflation

Inflation generally affects us by increasing our cost of labor and clinical trial costs. We do not believe that inflation had a material effect on our financial statements included elsewhere in this prospectus.

Effects of Exchange Rate Fluctuations

We do not believe that exchange rate fluctuations had a significant impact on our results of operations for any periods presented herein.

Internal Control Over Financial Reporting

In the course of preparing our financial statements for fiscal years ended December 31, 2018 and December 31, 2019, we identified a material weakness in our internal control over financial reporting. See the section titled “Risk Factors—We have identified a material weakness in our internal control over financial reporting and may identify material weaknesses in the future or otherwise fail to maintain proper and effective internal controls, which may impair our ability to produce accurate financial statements on a timely basis.”

BUSINESS

Overview

We are a late-stage biopharmaceutical company focused on developing and commercializing novel therapies for rare endocrine disorders with significant unmet medical need. We are initially developing our wholly-owned product candidate, tildacerfont, as the potential first non-steroidal therapy to offer markedly improved disease control and reduce steroid burden for patients suffering from classic congenital adrenal hyperplasia, or CAH. Classic CAH is a serious and life-threatening disease with no known novel therapies approved in approximately 50 years. In a 12-week Phase 2a proof-of-concept clinical trial, tildacerfont-treated patients suffering from classic CAH who had poor disease control despite being on standard of care therapy achieved approximately 80% reductions in hormones that are key indicators of poor disease control. Furthermore, 174 subjects across six clinical trials to date have been administered tildacerfont with no drug-related serious adverse events, or SAEs, reported.

We have initiated a placebo-controlled, double-blind Phase 2b clinical trial in adult patients with classic CAH with poor disease control and anticipate topline results in the fourth quarter of 2021. We anticipate initiating a second Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020 and anticipate topline results in the first half of 2022. Based on post-hoc analyses of our clinical data to date, we have chosen to target two distinct groups of classic CAH patients with either good disease control or poor disease control. These two groups, which together make up the entire classic CAH patient population, have differing disease challenges centered on excessive adrenal androgen levels or excessive glucocorticoid usage, both of which have the potential to be addressed by treatment with tildacerfont, if approved. We believe our strategy may enable us to observe clinically meaningful outcomes with fewer total patients studied. Additionally, we believe these two clinical trials will provide sufficient patient exposures for our registrational safety database. Assuming positive results in the glucocorticoid reduction trial, we plan to meet with the U.S. Food and Drug Administration, or FDA, and comparable foreign regulatory authorities in 2022 to discuss registration.

In addition, we plan to initiate a pediatric development program in classic CAH in the second half of 2021. We have received initial feedback from the FDA on our planned Phase 2 clinical trial of tildacerfont in children as young as five years of age with classic CAH, and we are also in discussions with the European Medicines Agency, or EMA, to gain their feedback. Beyond classic CAH, we believe tildacerfont has utility in a range of diseases where the underlying biology supports a need to reduce excess secretion of adrenocorticotropic hormone, or ACTH. We are committed to leveraging our deep scientific knowledge of the biology of rare endocrine disorders, the unique benefits of tildacerfont, and our commercial expertise to dramatically transform the lives of individuals living with these devastating disorders.

Classic CAH is an autosomal recessive disease, driven by a mutation in the gene that encodes an enzyme necessary for the synthesis of key adrenal hormones. In all classic CAH patients, the body is not able to produce cortisol, leading to serious health consequences. In the absence of cortisol, patients can face adrenal crisis and death rapidly as a result of any stressing event. Physicians administer replacement steroid hormones to reduce the risk of adrenal crises and death; however, replacement alone is not sufficient to address all of the consequences associated with classic CAH.

The absence of cortisol alters the normal feedback cycle of the hypothalamic-pituitary-adrenal, or HPA, axis, and leads to excess secretion of ACTH, hyperplasia of the adrenal gland, and consequently high levels of endogenous androgen production. As a result, classic CAH patients suffer from premature puberty, impaired fertility, hirsutism, acne, the development of adrenal rest tumors, and an impaired quality of life, and additionally for females, virilized genitalia and menstrual irregularities.

Currently, the only way to downregulate the production of excess androgens in classic CAH patients is to administer even higher doses of glucocorticoids, known as supraphysiologic glucocorticoid dosing. These elevated dose levels present specific side effects, including increased risks of developing diabetes, cardiovascular disease, stunted growth, osteoporosis, thin skin, gastrointestinal disorders, and decreased lifespan.

Due to the severity of the disease, most developed countries have established newborn screening programs to test for classic CAH at birth. Infants with classic CAH are generally initiated on glucocorticoid therapy at the time of diagnosis and lifelong disease management is required, with pediatric patients generally transitioning into the care of adult endocrinologists between the ages of 18 and 21. Due to the complexity of management of classic CAH, in the United States, patients are generally managed within specialty endocrinology clinics, and in the European Union, or EU, most countries have a small number of centers of excellence addressing the population. We estimate the total classic CAH populations are approximately 20,000 to 30,000 people in the United States and approximately 50,000 people in the EU, and, according to the National Organization for Rare Disorders, the estimated incidence of classic CAH in the United States and Europe is between one in 10,000 and one in 15,000 live births.

Tildacerfont is a potent and highly selective antagonist of the CRF1 receptor, which is the receptor for corticotropin-releasing factor, or CRF. CRF, which is secreted by the hypothalamus, is most abundantly expressed in the pituitary gland and in the neocortex, and is the primary regulator of the HPA axis. By blocking the CRF1 receptor, tildacerfont has the potential to address the uncontrolled cortisol feedback regulatory pathway in CAH, and in turn reduce the production of ACTH in the pituitary, limiting the amount of androgen produced downstream from the adrenal gland. We believe that by controlling excess adrenal androgens through an independent mechanism, tildacerfont could reduce the unwanted clinical symptoms associated with high androgen exposure. Tildacerfont use could also enable treating physicians to lower the supraphysiologic glucocorticoid doses given to classic CAH patients to near physiologic levels, thus reducing or avoiding the long-term and serious side effects associated with the chronic use of high dose glucocorticoids.

Tildacerfont has been evaluated in six clinical trials in which it has been generally well tolerated. No drug-related SAEs have been reported related to tildacerfont treatment. To date, we have completed two Phase 2 clinical trials in patients with classic CAH, a two-week proof-of-mechanism dose ranging clinical trial, and a 12-week proof-of-concept clinical trial, in which we observed that tildacerfont led to the decrease in the levels of a series of hormones associated with adrenal hyperplasia and androgen synthesis, both of which are key indicators of poor disease control. In our 12-week clinical trial, of patients with highly elevated hormones and androgens at baseline, 60% achieved normalization of ACTH, one subject at week two prior to discontinuation and two subjects during month three, and 40% achieved normalization of androstenedione, or A4, during month three. A4 is an androgen steroid routinely used as a biomarker of androgen synthesis by the adrenal gland.

Through our clinical trials completed to date, we have conducted post-hoc analyses of two distinct groups of classic CAH patients, both on stable standard-of-care glucocorticoids: those who have poor disease control, as evidenced by highly elevated hormones and androgens at baseline; and those who have good disease control, as evidenced by hormones and androgens that are close to or within the normal range at baseline. In patients with poor disease control, we believe that the dose of glucocorticoids being administered was insufficient on its own to suppress adrenal hyperplasia and androgen synthesis. Patients with poor disease control may be intolerant to higher glucocorticoid doses or unwilling to accept the negative consequences resulting from chronic use of high doses of glucocorticoids. In patients with poor disease control, the addition of tildacerfont provided a potential non-steroidal solution to control excess androgen synthesis. Patients receiving tildacerfont showed reduced levels of disease-driving hormones and androgen by a mean of approximately 80%, resulting

in levels close to those found in healthy adults without any changes to the glucocorticoid dosing in these patients.

We observed that classic CAH patients in our clinical trials with good disease control upon trial enrollment were receiving glucocorticoid doses approximately 44% higher than those patients with poor disease control. Dosing of tildacerfont in patients with good disease control was well tolerated and did not lead to further suppression of adrenal function or androgen synthesis. In these patients, tildacerfont may be able to allow a significant reduction in glucocorticoid dosing while continuing to maintain normal levels of androgens. Based on the strength of our clinical results to date, we believe tildacerfont has the potential to offer improved clinical outcomes for both poor disease control and good disease control classic CAH patients.

We have initiated a double-blind, placebo-controlled Phase 2b clinical trial in adult patients with classic CAH who have poor disease control despite stable glucocorticoid dosing. The goals of this clinical trial are to: (i) assess the ability of three dose levels of tildacerfont to reduce the levels of disease associated hormones and androgens over a period of 12 weeks; (ii) assess the impact of dose-titration of tildacerfont to further improve these hormone and androgen levels over 24 weeks; (iii) assess clinical outcomes that result from hormone reductions over 52 weeks; and (iv) assess the long-term safety of tildacerfont over 52 weeks. We anticipate initiating a Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020 and anticipate topline results in the first half of 2022. The goals of this clinical trial are to: (i) evaluate the ability of tildacerfont to allow clinically meaningful reductions in glucocorticoid dosing over periods of 24 and 52 weeks while maintaining good disease control; (ii) assess the combined impact of tildacerfont administration and glucocorticoid reduction on improving clinical outcomes over 24 and 52 weeks; and (iii) assess the long-term safety of tildacerfont over 52 weeks. Based on analyses of our clinical data to date, we have chosen to target two distinct groups of classic CAH patients with either good disease control or poor disease control. These two groups, which together make up the entire classic CAH patient population, have differing disease challenges centered on excessive adrenal androgen levels or excessive glucocorticoid usage, both of which have the potential to be addressed by treatment with tildacerfont, if approved. We believe our strategy may enable us to observe clinically meaningful outcomes with fewer total patients studied. Additionally, we believe these two clinical trials will provide sufficient patient exposures for our registrational safety database. Assuming positive results in the glucocorticoid reduction trial, we plan to meet with the FDA and comparable foreign regulatory authorities in 2022 to discuss registration. We are also developing a pediatric development plan to assess the safety and efficacy of tildacerfont in patients as young as five years of age, and anticipate initiating a clinical trial in this patient population in the second half of 2021.

We own worldwide development and commercialization rights for tildacerfont. We intend to build a highly specialized commercial organization to support the commercialization of tildacerfont, if approved, in the United States and Europe. Given a relatively small number of endocrinologists and specialists treat patients with classic CAH, we believe this market can be effectively addressed with a modest-sized targeted commercial sales force, alongside various high-touch patient initiatives. If tildacerfont is approved for additional indications, we plan to leverage our rare disease commercial infrastructure and expertise to efficiently address those patient populations. We may also either build a commercial infrastructure or opportunistically seek strategic collaborations to benefit from the resources of biopharmaceutical companies specialized in either relevant disease areas or geographies.

We have developed and continue to expand our extensive patent portfolio for tildacerfont, covering composition of matter, method of synthesis, formulation, and use. We have also been granted orphan drug designation for tildacerfont for the treatment of classic CAH both in the United States and the EU. We have assembled a highly experienced team with broad capabilities in drug discovery,

development, and commercialization. In aggregate, our team has contributed to the development and commercial launch of 28 products, including within the fields of endocrinology and rare diseases. Richard King, our Chief Executive Officer, previously served as Chief Operating Officer at Adamas Pharmaceuticals and President and Chief Executive Officer of AcelRx Pharmaceuticals. Prior to that, Mr. King served as President and Chief Operating Officer of Tercica, Inc., a company focused on developing and commercializing therapeutics for rare endocrine disorders, until its acquisition by Ipsen, S.A. Samir Gharib, our Chief Financial Officer, previously served as Chief Financial Officer at Stemedica Cell Technologies. Since our inception, we have raised approximately $116.0 million in equity financing from healthcare investors including Abingworth Bioventures, Aisling Capital, HealthCap, Novo Holdings, Omega Funds, RiverVest Venture Partners, Rock Springs Capital, Sands Capital, and Surveyor Capital (a Citadel company).

Our Development Plan for Tildacerfont

We are investigating tildacerfont in orphan indications where the underlying disease biology supports a need to reduce excess secretion of ACTH. We are currently in late-stage clinical development for tildacerfont in adult patients with classic CAH. We have initiated the first Phase 2b clinical trial in adult patients with classic CAH with poor disease control and anticipate topline results in the fourth quarter of 2021. We anticipate initiating a second Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020 and anticipate topline results in the first half of 2022. Based on analyses of our clinical data to date, we have chosen to target two distinct groups of classic CAH patients with either good disease control or poor disease control. These two groups, which together make up the entire classic CAH patient population, have differing disease challenges centered on excessive adrenal androgen levels or excessive glucocorticoid usage, both of which have the potential to be addressed by treatment with tildacerfont, if approved. We believe our strategy may enable us to observe clinically meaningful outcomes with fewer total patients studied. Additionally, we believe these two clinical trials will provide sufficient patient exposures for our registrational safety database. Assuming positive results in the glucocorticoid reduction trial, we plan to meet with the FDA and comparable foreign regulatory authorities in 2022 to discuss registration.

We also plan to investigate tildacerfont for the treatment of classic CAH in children as young as five years of age, and plan to initiate the clinical development program for tildacerfont in the pediatric classic CAH population in the second half of 2021. By leveraging our existing Phase 1 program, which includes safety, tolerability, and pharmacokinetics of tildacerfont, in addition to dose modelling to adapt the information from adults to children, we plan to initiate a Phase 2 clinical trial. We have received initial feedback from the FDA on our planned Phase 2 clinical trial, and we are also in discussions with the EMA to gain their feedback.

Polycystic ovary syndrome, or PCOS, is a hormonal disorder common among females of reproductive age affecting nearly five million females in the United States and approximately 115 million females worldwide. PCOS is characterized by elevated levels of androgens, cysts in the ovaries, and irregular periods. We have identified a subpopulation of patients where elevated levels of adrenal androgens are the cause of disease. We believe that tildacerfont may present a novel mechanism to reduce ACTH and provide a therapeutic option for females with this rare form of PCOS, representing 3-5% of females with PCOS. We plan to file an investigational new drug application, or IND, to study tildacerfont in this patient population in the first half of 2021. By leveraging our existing Phase 1 program, which includes safety, tolerability, and pharmacokinetics of tildacerfont, subject to the clearance of our planned IND, we believe we will be able to initiate a Phase 2 proof-of-concept clinical trial in the second half of 2021.

The following table summarizes our development plan for tildacerfont:

Product Candidate	Indication	Status	Key Anticipated Milestone(s)
Tildacerfont	Adult Classic Congenital Adrenal Hyperplasia	▪ Initiated Phase 2b clinical trial (Study 203) to evaluate androgen reduction and clinical consequences in adult patients with classic CAH ▪ Expect to initiate Phase 2b clinical trial (Study 204) in Q3 2020 to evaluate glucocorticoid reduction and clinical consequences in adult patients with classic CAH	▪ Q4 2021: Study 203 topline results ▪ 1H 2022: Study 204 topline results
	Pediatric Classic Congenital Adrenal Hyperplasia	▪ Received initial FDA feedback on planned Phase 2 clinical trial in children as young as 5 years old	▪ 2H 2021: Initiate Phase 2 clinical trial*
	Polycystic Ovary Syndrome	▪ Developing clinical development plan in a subpopulation of females with a rare form of PCOS; planning Phase 2 proof-of-concept clinical trial	▪ 1H 2021: File IND ▪ 2H 2021: Initiate Phase 2 proof-of-concept clinical trial*

* Subject to clearance of the applicable IND.

Our Strategy

- **Complete clinical development for tildacerfont and seek regulatory approval for the treatment of adults with classic CAH.** Our completed Phase 2 clinical trials of tildacerfont in classic CAH patients have demonstrated the potential of tildacerfont to lower ACTH and levels of key steroid precursors for androgen synthesis. We have initiated a placebo-controlled, double blind Phase 2b clinical trial in adult patients with classic CAH with poor disease control and anticipate topline results in the fourth quarter of 2021. We anticipate initiating a second Phase 2b clinical trial in adult patients with classic CAH with good disease control focused on glucocorticoid reduction in the third quarter of 2020 and anticipate topline results in the first half of 2022. Based on analyses of our clinical data to date, we have chosen to target two distinct groups of classic CAH patients with either good disease control or poor disease control. These two groups, which together make up the entire classic CAH patient population, have differing disease challenges centered on excessive adrenal androgen levels or excessive glucocorticoid usage, both of which have the potential to be addressed by treatment with tildacerfont, if approved. We believe our strategy may enable us to observe clinically meaningful outcomes with fewer total patients studied. Additionally, we believe two clinical trials will provide sufficient patient exposures for our registrational safety database. Assuming positive results in the glucocorticoid reduction trial, we plan to meet with the FDA and comparable foreign regulatory authorities in 2022 to discuss registration.
- **Advance tildacerfont through clinical development and seek regulatory approval for the treatment of children with classic CAH.** There is an urgent need to bring androgen-lowering and glucocorticoid-reduction therapy to pediatric classic CAH patients to avoid premature puberty and the adverse effects of glucocorticoids, which can include preventing a child from growing to their full height. We are developing a pediatric development plan to assess the safety and efficacy of tildacerfont in patients as young as five years of age. We plan

to initiate a pediatric development program in classic CAH in the second half of 2021. We have received initial feedback from the FDA on our planned Phase 2 clinical trial of tildacerfont in children as young as five years of age with classic CAH, and we are also in discussions with the EMA, to gain their feedback.

- **Maximize the commercial potential of tildacerfont in classic CAH.** We intend to build a highly specialized commercial organization to support the commercialization of tildacerfont, if approved, in the United States and Europe. Given a relatively small number of endocrinologists and specialists treat patients with classic CAH, we believe this market can be effectively addressed with a modest-sized targeted commercial sales force, alongside various high-touch patient initiatives. If tildacerfont is approved for additional indications, we plan to leverage our rare disorder commercial infrastructure and expertise to efficiently address those patient populations. We may also opportunistically either build a commercial infrastructure or seek strategic collaborations to benefit from the resources of biopharmaceutical companies specialized in either relevant disease areas or geographies.
- **Explore the potential of tildacerfont to bring therapeutic benefit to patients with other rare endocrine disorders.** We believe that tildacerfont has the potential to bring therapeutic benefit to patients suffering from rare endocrine disorders where the underlying disease biology supports a need to reduce excess secretion of ACTH. Based on this biological rationale, we believe tildacerfont may have utility in controlling elevated levels of adrenal androgens in a subpopulation of females with a rare form of PCOS. We believe these patients may potentially benefit from treatment with tildacerfont by reducing their ACTH level and related adrenal androgen production. We plan to file an IND to study tildacerfont in this patient population in the first half of 2021. By leveraging our existing Phase 1 program, which includes safety, tolerability, and pharmacokinetics of tildacerfont, subject to the clearance of our planned IND, we believe we will be able to initiate a Phase 2 proof-of-concept clinical trial in the second half of 2021. We will also continue to explore the utility of tildacerfont in other rare endocrine disorders, such as the severe form of non-classic CAH in which there is a strong scientific and clinical rationale.
- **Evaluate strategic opportunities to expand our product candidate portfolio.** We intend to seek to in-license or acquire development-stage product candidates in rare endocrine disorders that have the potential to complement our existing portfolio. We believe that there are many opportunities to leverage our deep endocrine expertise to develop new treatments for rare endocrine disorders with significant unmet medical needs.

Role of the Endocrine System and the HPA Axis

The endocrine system regulates most of the body's physiological activities through the actions of hormones, which are chemical and biochemical messengers secreted from different organs that influence growth, gastrointestinal function, maturation and development, reproduction, stress, metabolism, and nearly all aspects of homeostasis. The endocrine system includes, among other glands and organs, the pituitary gland, hypothalamus, pancreas, adrenal gland, thyroid and parathyroid, ovaries and testes, as well as specialized enteroendocrine cells. Hormonal secretion is complex and the body employs several mechanisms to exert positive and negative feedback control to maintain homeostasis.

The HPA axis is a critical component of the endocrine system and the body's response to stress. In a functioning HPA axis, CRF is synthesized and secreted from the hypothalamus in the brain. This stimulates the secretion of ACTH, through activation of the CRF1 receptor at the pituitary gland, which in turn stimulates the production of several hormones in the adrenal cortex: corticosteroids, which gauge the body's response to illness or injury; mineralocorticoids, which regulate salt and water levels; and androgens, which are male sex hormones. Cortisol, a glucocorticoid steroid, exerts a negative

feedback response at the hypothalamus and pituitary, which decreases secretion of CRF and ACTH, respectively, to maintain an appropriate balance of all three hormones.

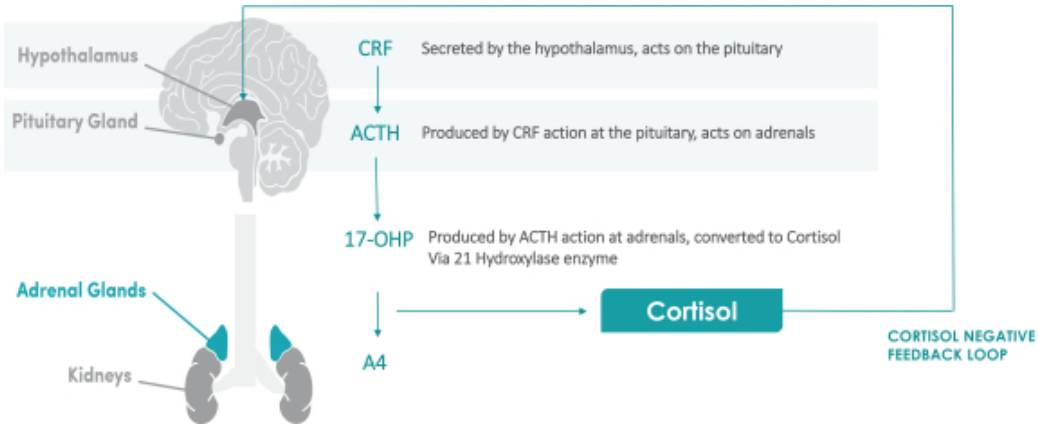


Figure 1. Normal HPA Axis function.

Classic CAH Disease Overview

Classic CAH is a chronic and potentially life-threatening rare disease with no cure. The most common cause of classic CAH, accounting for an estimated 95% of cases, is a genetic mutation leading to the production of dysfunctional 21-hydroxylase, an enzyme necessary for the biosynthesis of both corticosteroids and mineralocorticoids. Patients with classic CAH present with dysregulation across the HPA axis due to this enzymatic deficiency that shuts down the production of corticosteroids and, in approximately 75% of cases, the production of mineralocorticoids.

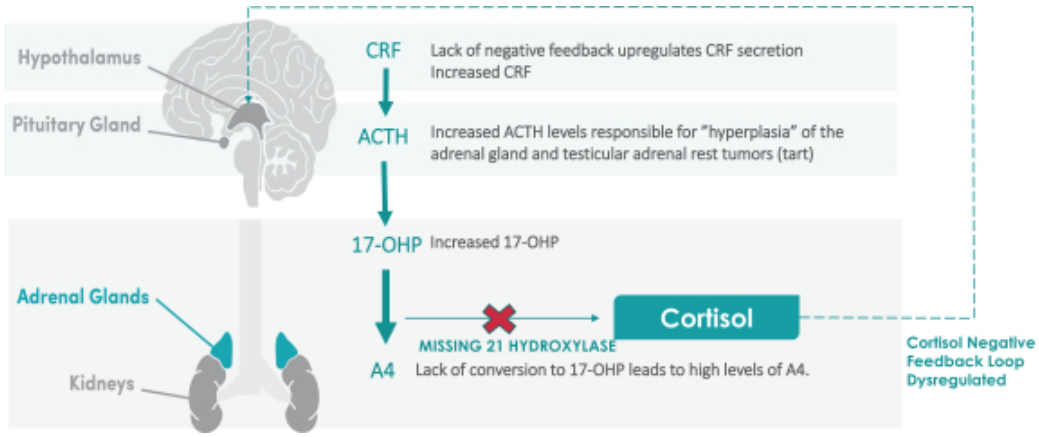


Figure 2. The dysregulation of the HPA axis in classic CAH.

The immediate goal of treatment is the prevention of adrenal crises by replacing the missing physiological levels of corticosteroids. However, cortisol levels in the body vary daily, and normally increase during periods of high stress, making adequate control very difficult to achieve for most

patients. In response to chronically absent or inadequate cortisol levels, the pituitary gland secretes higher levels of ACTH to further stimulate steroid synthesis in the adrenal gland. This results in hyperplasia of the gland and the shunting of the steroid precursors to androgen synthesis, resulting in excess levels of androgens such as testosterone and A4 with overt symptoms of virilization. Therefore, the long-term symptomatic control in these patients is to reduce ACTH through supraphysiological doses of exogenous glucocorticoids via a negative feedback response.

The consequences of being born with CAH are severe. All patients born with classic CAH have cortisol deficiency, which makes these patients susceptible to adrenal crises in as early as one to four weeks of age. Due to the life-threatening adrenal crisis, screening for classic CAH is a standard part of routine neonatal screening in the United States and many other major geographies around the world. The most common cause of an adrenal crisis is an infection. Adrenal crisis can also be precipitated by other inducers of stress including surgery, dehydration, or trauma, and is characterized by extreme weakness, nausea, and vomiting. To prevent adrenal crises, physiological replacement of glucocorticoids is initiated in the neonatal period. Data from approximately 6.5 million newborn infants screened worldwide show an estimated incidence of approximately one in 15,000 live births.

Even when patients are diagnosed early and treated with steroids, the associated, continued exposure to high levels of androgens results in premature or precocious puberty, with onset sometimes occurring as early as five years of age. Early puberty drives early maturation of the body's bones, resulting in an adult height that is typically significantly below the height expected based on the parents' heights. In females, the presence of excess androgens in the body causes virilization, often leading to ambiguous genitalia and masculinizing features apparent at birth. Female adolescents and adults may develop male-pattern alopecia, acne, hirsutism, menstrual irregularities, and impaired fertility. Often commencing in early adolescence, a substantial proportion of males can develop testicular adrenal rest tumors, or TARTs, benign tumors that can lead to pain and impaired fertility.

Numerous studies have documented diminished quality of life in patients with CAH related both to the disease and its treatment with glucocorticoids. For example, CAH patients commonly experience fatigue, sleep disturbances, concentration problems, and challenges with social interactions.

Patients with classic CAH face increased risk of mortality, with one study documenting an average reduced lifespan of 6.5 years. The causes of death were adrenal crisis (42%), cardiovascular disease (32%), cancer (16%), and suicide (10%).

Consequences of Lack of Cortisol and Aldosterone

A lack of functional 21-hydroxylase enzyme results in the inability to produce sufficient corticosteroids, such as cortisol, and mineralocorticoids, such as aldosterone. Cortisol functions as the body's main stress hormone. Biochemically, it regulates glucose metabolism, inflammation and blood pressure. On a behavioral level, it controls mood, motivation, fear, and sleep/wake cycles. Aldosterone regulates the electrolyte balance between sodium and potassium in the body. Low levels of aldosterone result in hyponatremia, low blood pressure and volume, dizziness, and lightheadedness. Restoration of the function of both cortisol and aldosterone is the primary goal of current therapies for classic CAH.

Consequences of the Accumulation of the Androgen Precursor 17-OHP

A consequence of the absence of 21-hydroxylase is the accumulation of 17-hydroxyprogesterone, or 17-OHP, a precursor molecule to androgens and cortisol. Without 21-hydroxylase to convert 17-OHP into cortisol, increased levels of 17-OHP are shunted to an alternative hormone resulting in increased synthesis of the testosterone precursor, A4, and related increases in the levels of other androgens in the body, resulting in virilization that complicates fertility and sexual maturation in both

females and males. The following figure depicts steroid treatment intervention in patients with classic CAH.

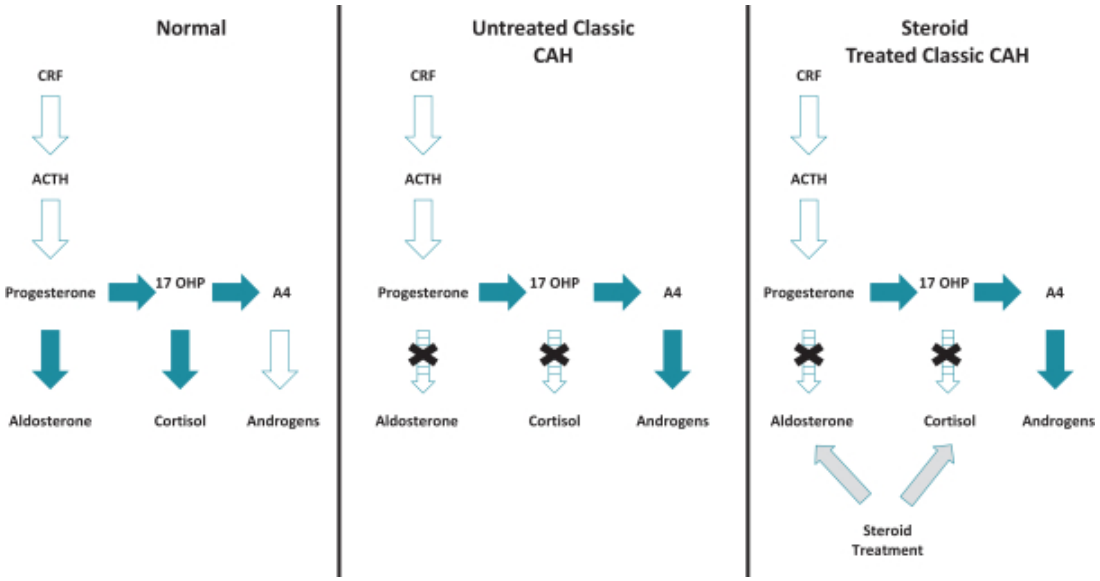


Figure 3. Depiction of steroid treatment intervention in patients with classic CAH.

Inadequate Regulation of Steroid Synthesis Leading to Androgen Excess

Cortisol serves as a negative regulator of the HPA axis, regulating its own production. Increasing levels of cortisol downregulate the synthesis of CRF in the hypothalamus and ACTH in the pituitary to ultimately reduce the production of cortisol precursor molecules, such as 17-OHP. In classic CAH patients, deficiencies in cortisol levels stimulate this feedback mechanism and results in excess production of CRF and ACTH. CRF produced in the hypothalamus binds to the CRF1 receptor in the pituitary gland to stimulate the production of ACTH. In turn, ACTH overproduction drives both adrenal hyperplasia, or enlargement of the adrenal glands, and overproduction of steroid molecules such as 17-OHP and A4, leading to increased androgen production. This serves to further exacerbate the excessive levels of androgens in these patients.

Current Treatment Paradigm and its Limitations

The mainstay of classic CAH therapy for over 50 years has been lifelong treatment with glucocorticoids such as hydrocortisone, prednisone, prednisolone, methylprednisolone, or dexamethasone. These treatments do not cure the disease, but they serve a two-fold purpose in disease management. Firstly, physiologic levels of glucocorticoids replace the missing cortisol in order to prevent adrenal crisis. Secondly, supraphysiologic levels of glucocorticoids reduce excess androgens through the negative feedback loop alleviating additional hyperandrogenic symptoms.

The level of glucocorticoid necessary to achieve therapeutic benefit is specific to each patient, requires adjustment to individual patient circumstances, and may change over the patient's lifetime, thereby creating multiple challenges for effective treatment. Chronic use of glucocorticoids requires careful management, because of the well-known serious side effects of these drugs, which include growth inhibition in children, high blood pressure, diabetes, psychological effects, skin thinning, and increased risks of infections.

Clinical management of classic CAH is a difficult balance between supplying sufficient levels of glucocorticoids to compensate for deficiencies in cortisol levels while minimizing side effects resulting in a narrow therapeutic window. In an analysis of classic CAH patients treated in the United States and the United Kingdom, or UK, only one-third of those dosed with glucocorticoids achieved optimal control of their androgen levels. While treatment with supraphysiologic glucocorticoids can help restore the regulation of CRF and ACTH production leading to reductions in excess 17-OHP and A4 synthesis, in order to restore a more appropriate balance, physicians must identify the desired glucocorticoid dose for each patient. This is challenging, because the amount of cortisol needed to modulate 17-OHP and A4 levels is much higher than that required to functionally replace the missing cortisol.

From birth to adulthood, the aim of glucocorticoid treatment is to identify the right balance based on both the patient's physical maturation as well as gender. At birth, the aim of treatment is to provide an adequate level of steroids to prevent an adrenal crisis. Throughout childhood, treatment becomes more complex with both a need to maintain adequate steroid levels but also ensure androgen levels are as close to normal to prevent precocious puberty while not stunting growth and to prevent premature closure of bone growth plates as a result of treatment with supraphysiologic steroids. The aim of treatment for adolescents and adults is to provide the body with the ability to maintain a normal energy level, normal growth, and fertility while minimizing clinically overt signs of excess glucocorticoids or excess androgens. In adults, the balancing act may be different between males and females. Females experience more outward signs of excess androgens than males, so females are more attentive to androgen control through supraphysiologic glucocorticoids while males may be more attentive to the adverse outcomes associated with supraphysiologic glucocorticoid replacement.

This makes glucocorticoid therapy challenging, since treatment with high levels of glucocorticoids leads to, among other consequences, obesity, short stature, the loss of bone mineral density, drug-induced Cushing's disease, which is a condition that occurs from exposure to high cortisol levels for a long period of time, metabolic disorders, increased cardiovascular and infection risk, and early mortality. The following figure depicts the need to balance the negative consequences that result from poor control of androgen levels with those associated with high levels of glucocorticoids.

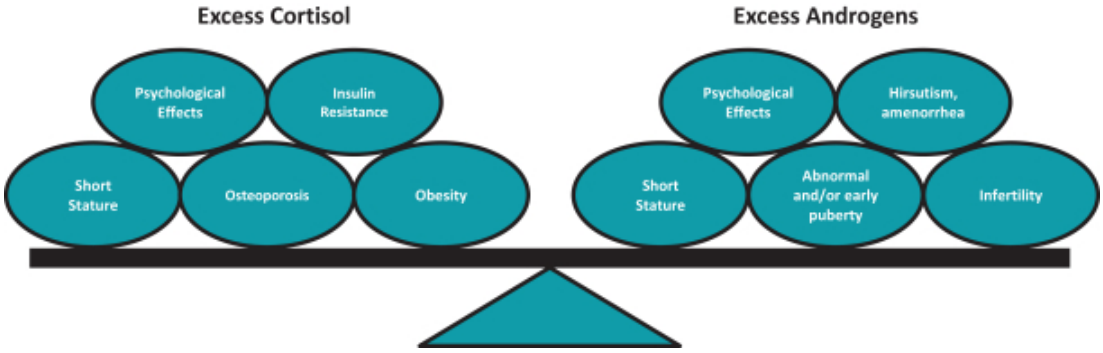


Figure 4. The challenge in treating CAH is balancing therapy to provide optimal control of androgens while avoiding excess cortisol levels.

A novel approach to suppress androgen synthesis would be to directly inhibit the ability of CRF to stimulate ACTH synthesis using a CRF1 receptor antagonist. This approach has the potential to dissociate physiologic cortisol replacement with glucocorticoids from cortisol's regulatory role as a negative-regulator of ACTH to both prevent the hyperplasia of the adrenal gland and reduce the ensuing excess androgen synthesis. In effect, this is an independent mechanism to block excessive ACTH production. We believe that an effective CRF1receptor antagonist will enable physicians to

reduce the dose of glucocorticoids administered to patients in a way that will address their cortisol replacement needs and simultaneously avoid excessive androgen production.

Our Solution, Tildacerfont

Tildacerfont is a potent and highly selective small-molecule antagonist of the CRF1 receptor, a regulator of the production of ACTH. The CRF1 receptor binds CRF, a potent mediator of endocrine, autonomic, behavioral and immune responses to stress. Activation of the CRF1 receptor in the pituitary gland has been shown to increase the secretion of ACTH, which in turn drives the production of cortisol and androgens in the adrenal gland. By blocking the CRF1 receptor, tildacerfont can address the uncontrolled cortisol feedback regulatory pathway in CAH, and in turn reduce the production of ACTH in the pituitary, limiting the amount of androgen produced downstream from the adrenal gland. Tildacerfont has been assessed in six clinical trials, in which it has been well tolerated with no drug-related SAEs. In preclinical studies, we showed that blocking the binding of CRF to this receptor decreased ACTH production and the production of hormones and androgens such as 17-OHP and A4 and that tildacerfont was over 1,000 fold selective for the CRF1 receptor versus any other receptor tested. Based on preclinical data, receptor occupancy of at least 90% was predicted to be achieved at a dose of less than 400mg.

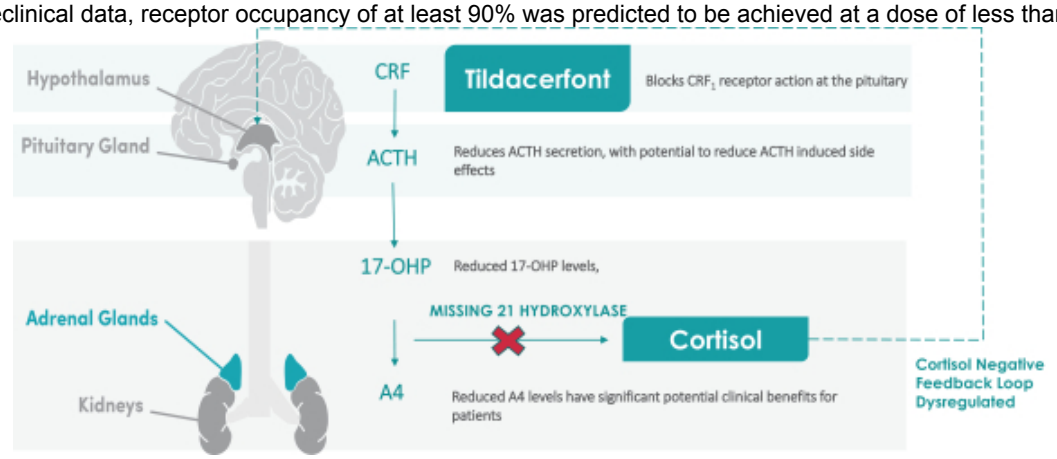


Figure 5. Tildacerfont blocks CRF1 receptors at the anterior pituitary gland to decrease secretion of ACTH, hormones, such as 17-OHP, and androgens, such as A4.

Tildacerfont has been investigated in four completed Phase 1 clinical trials in healthy adult volunteers, both in single doses ranging from 2mg to 800mg as well as in multiple doses ranging from 50mg to 200mg once daily, for 14 days. In all of these clinical trials, tildacerfont was generally well tolerated. A total of 148 healthy volunteers have received at least one dose of tildacerfont. No drug-related SAEs during tildacerfont treatment were observed in these clinical trials and the most frequent non-procedural adverse events experienced by greater than 5% of the healthy volunteer population were headache and cough.

Completed Clinical Trials in Classic CAH Patients

We conducted two Phase 2a clinical trials of tildacerfont in adult patients with classic CAH on stable glucocorticoid therapy. Clinical trial SPR001-201 was an open-label, dose-ranging clinical trial in 24 patients. These patients received a series of doses of tildacerfont for two weeks each in addition to their standard daily glucocorticoid dose. Two patients participated in two cohorts in SPR001-201.

Clinical trial SPR001-202 was a 12-week clinical trial of 11 patients treated with a fixed dose of 400mg tildacerfont once daily. Nine of the 11 SPR001-202 patients also participated in SPR001-201. A total of 26 unique classic CAH patients have been treated to date with tildacerfont. The results from the clinical trials to date suggest that tildacerfont may reduce excessive glucocorticoids to near-physiologic replacement of missing cortisol.

Previous observations had identified that tildacerfont interacts with CYP3A4, a liver enzyme that is responsible for the metabolism of a number of drugs. When a drug inhibits or induces CYP3A4, it can impact the body's ability to metabolize other drugs. In SPR001-201, we observed that tildacerfont led to an approximately two-fold increase in the levels of dexamethasone, a glucocorticoid that is primarily metabolized through CYP3A4. In order to eliminate any potentially confounding drug-drug interactions from our clinical trial, we subsequently removed patients who were being treated with dexamethasone from our efficacy analyses. No drug-drug interactions were observed with other glucocorticoids and we made no other modifications.

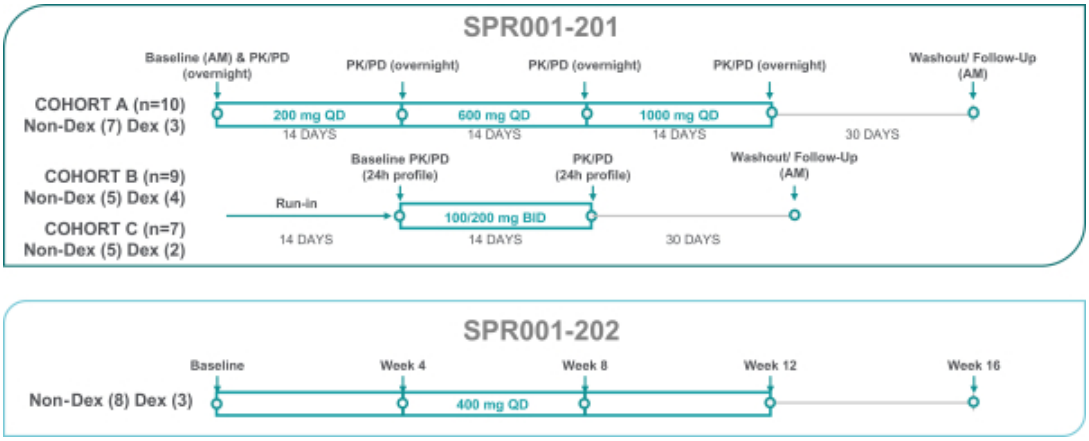


Figure 6. Dosing regimen in Phase 2 SPR001-201 and SPR001-202.

SPR001-201 Results

SPR001-201 was our first clinical trial in adults with classic CAH and was a proof-of-concept, dose-escalating Phase 2a clinical trial in patients who were on a stable glucocorticoid dosing regimen but still had levels of 17-OHP that were four-fold or greater above the 200 ng/dL upper limit of normal, or ULN. Patients enrolled in three sequential cohorts, and during the clinical trial, could not change their underlying glucocorticoid regimen to avoid confounding the effect of varying glucocorticoid levels on disease-driving hormones. The clinical trial assessed the safety and pharmacokinetics of tildacerfont across a range of doses from 200mg to 1,000mg once daily and 100mg and 200mg twice daily. Pharmacodynamic activity was assessed using ACTH, 17-OHP, and A4 overnight with the baseline and key assessment at 8:00 a.m. This overnight period was selected as it represents the time period during which excess production of ACTH and hormones and androgens peak. The goal of this clinical trial was to assess whether tildacerfont could blunt the magnitude of this rise in the hormones.

The enrollment screening criteria for SPR001-201 ensured that 17-OHP was elevated in all but one patient at baseline (8:00 a.m. on day one) enrolled in this clinical trial; however, the levels of ACTH and A4 were more variable. In a post-hoc analysis, we identified two homogenous patient groups using ACTH and A4, and classified these patients as either those with "poor disease control" or "good disease control". In our clinical trial, patients with poor disease control had highly elevated ACTH, 17-OHP, and A4 levels, generally greater than twice the ULN and, more commonly, greater than four

times the ULN. These patients with poor disease control were on a stable mean daily supraphysiologic dose of approximately 25mg of hydrocortisone, or a dose of another glucocorticoid equivalent to 25mg of hydrocortisone. Patients with good disease control had elevated 17-OHP levels but had ACTH and A4 generally less than twice the ULN and more commonly, within the normal bounds for ACTH and A4. These patients were on doses equivalent to a mean daily supraphysiologic dose 36mg of hydrocortisone, which was a 44% higher total daily dose than patients with poor disease control. These findings suggest that patients in the poor disease control patient group may have been receiving inadequate glucocorticoid doses to provide adequate control of their disease, possibly due to an inability to tolerate higher doses of glucocorticoids or unwillingness to accept the adverse outcomes attributed to chronic dosing of supraphysiologic glucocorticoids. Given the clear differences in baseline hormone profiles and glucocorticoid dosing, we decided to analyze the effect of tildacerfont on hormones in these two groups independently. We believe that by identifying these two homogeneous patient groups, and designing our development program around the two groups, we are uniquely positioned to address the two major areas of unmet medical need for these patients.

Table 1 summarizes the key demographic and baseline characteristics across the two patient groups. The demographics across both patient groups were similar. The age distribution trended to older subjects with an average age of 44 years, as compared to an age range of 19 years to 67 years, with an average body mass index, or BMI, of approximately 31, signifying an obese population on average. The daily glucocorticoid dose and baseline hormones were different between the two patient groups.

	Good Disease Control (N=6)	Poor Disease Control (N=11)
Demographics		
Age (yrs), mean (SD)	44 (16.6)	45 (17.0)
Sex, Female, n (%)	5 (83%)	6 (55%)
Race, White n (%)	6 (100%)	10 (91%)
BMI (kg/m2), mean (SD)	31.3 (5.77)	30.0 (5.9)
Baseline Glucocorticoid dose		
Dose (mg) in Hydrocortisone equivalents	36.3 (8.02)	24.5 (8.6)
Baseline Hormones (8:00 a.m.)		
ACTH (pg/mL), geometric mean (CV%)	30.9 (273.1%)	3970 (88.5%)
17-OHP (ng/dl), geometric mean (CV%)	1531.6 (489%)	6688.6 (113%)
A4 (ng/dL), geometric mean (CV%)	97.6 (338%)	333.1 (171%)

Table 1. Demographics and baseline hormones in non-dexamethasone patients (SPR001-201).

While the exposure levels, as a function of dose, generally demonstrated dose linearity, no clear dose-response was observed in ACTH, 17-OHP, and A4 reductions. The lowest evaluated dose of 200mg once daily resulted in hormone changes that were comparable to those observed at higher doses (Figures 7-9). Also, overall dosing twice daily did not result in greater hormone reductions compared to once daily dosing. This finding corresponds with the initial predicted receptor occupancy data based on preclinical experiments demonstrating at least 90% receptor occupancy at doses of tildacerfont up to 400mg.

Figures 7-9 below summarize the changes in hormones across the overnight period. We conducted a post-hoc analysis which divided the subjects in this study into two groups, based on their hormone and androgen levels at baseline: poor disease control and good disease control. In the poor disease control group, there were 11 patients at doses equal to 200mg, six of whom received 200mg once per day in Cohort A and five of whom received 100mg twice per day in Cohort C, and 12 patients at doses greater than 200mg, six of whom received 600mg once per day and the same six of whom

received 1,000mg once per day. In the good disease control group, there were six patients, one patient at 200mg once per day in Cohort A and five patients at doses greater than 200mg, each receiving 200mg twice per day in Cohort B.

Patients in the poor disease control group had baseline levels of ACTH, 17-OHP, and A4 that were substantially above the target goal for these hormones (ACTH target of 63.3 pg/mL, 17-OHP target of 1200 ng/dL and A4 target of 152 ng/dL for males and 262 ng/dL for females). Subsequent to receiving tildacerfont for 14 days, the mean levels of all three hormones were generally reduced throughout the overnight period from 10:00 p.m. to 8:00 a.m. These reductions were observed despite no changes in glucocorticoid dosing. We believe that the reductions in the poor disease control group demonstrated proof of concept and supported further studies to assess the ability of tildacerfont to reduce hormones.

Patients in the good disease control group had mean baseline levels of ACTH and A4 that were already below the target goal for these hormones. Treatment with tildacerfont did not lead to clinically meaningful reduction of these levels, suggesting that administering tildacerfont in good disease control patients has a low risk of excessive adrenal suppression. We believe the observed changes in these hormones are reflective of typical day-to-day variation in these patients. Treatment of patients with good disease control who had elevated levels of 17-OHP led to a modest decrease in 17-OHP.

Figure 7. Change from baseline in ACTH (pg/mL) in poor and good disease control patients during the overnight period (SPR001-201).

Figure 8. Change from baseline in 17-OHP (ng/dL) in poor and good disease control patients during the overnight period (SPR001-201).

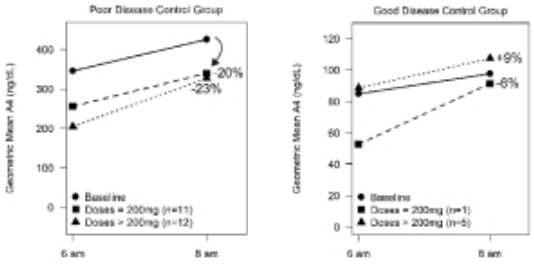


Figure 9. Change from baseline in A4 (ng/dL) in poor and good disease control patients (SPR001-201).

Of note, one classic CAH patient enrolled in this clinical trial, who had a pre-existing testicular mass classified as TART, saw a 25% decrease in the size of his tumor following six weeks of dosing with tildacerfont through two dose escalations in Cohort A. TARTs are directly driven by excess ACTH and the empiric standard of care to reduce TARTs is high dose dexamethasone. This tumor shrinkage is consistent with the mechanism of action of tildacerfont, reduction of excess ACTH, and provides the first known evidence of a non-steroidal, non-surgical reduction in a TART.

Tildacerfont was well tolerated in SPR001-201 at doses up to 1,000mg once daily. The most common adverse event was headache (n=3). The majority of events were grade one in nature. A female subject (age 48; 200mg twice daily) experienced a grade three hot flush that resolved on its own within 30 minutes in the first week of treatment. One event of special interest was observed at the highest dose of 1,000mg once daily. After 14 days of treatment at 1,000mg once daily, this patient experienced a grade one liver-related SAE, as determined by the investigator. This patient had elevated levels of alanine transaminase, or ALT, between five and nine times ULN, elevations in aspartate aminotransferase, or AST, less than five times ULN, and no increases in bilirubin. The event resolved on its own without additional medical intervention. No cases of liver enzyme elevations were observed in any patient receiving total daily doses of 600mg, which is approximately three times the proposed therapeutic dose, and below.

SPR001-202 Results

SPR001-202, our open-label, 12-week Phase 2a clinical trial, assessed the ability of a daily dose of 400mg of tildacerfont to lower disease-driving hormones such as ACTH, 17-OHP, and A4 over a 12-week dosing period. SPR001-202 was an extension clinical trial of SPR001-201, where the enrollment criteria was either prior participation in SPR001-201 or treatment-naïve patients meeting the 17-OHP criterion in SPR001-201. Disease-driving hormones were assessed at approximately 8:00 a.m. on each day corresponding to the peak excess hormone production. This clinical trial was conducted to evaluate the safety and tolerability of long-term treatment with tildacerfont and to assess the magnitude of hormone reductions after 12 weeks of treatment.

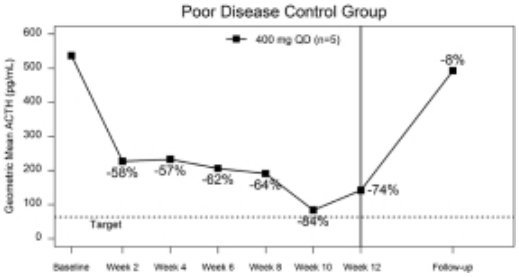
As with SPR001-201, dexamethasone subjects (n=3) were excluded from pharmacodynamic activity summaries but included in safety summaries. The table below summarizes the key demographic and baseline hormones in the non-dexamethasone patients.

	Good Disease Control (N=3)	Poor Disease Control (N=5)
Demographics		
Age (yrs), mean (SD)	48.0 (17.69)	42.4 (15.63)
Sex, Female, n (%)	3 (100%)	2 (40%)
Race, White n (%)	3 (100%)	4 (80%)
BMI (kg/m2), mean (SD)	35.5 (6.10)	27.8 (5.56)
Baseline Glucocorticoid dose		
Dose (mg) in Hydrocortisone equivalents	36.7 (11.6)	24.5 (11.5)
Baseline hormones		
ACTH (pg/mL), geometric mean (CV%)	12.2 (584.1%)	536.6 (108.5%)
17-OHP (ng/dl), geometric mean (CV%)	314.1 (1068.6%)	15323.3 (46.9%)
A4 (ng/dL), geometric mean (CV%)	28.8 (216.1%)	1001.1 (48.4%)

Table 2. Demographics and baseline hormones in good and poor disease control patients (SPR001-202).

Like with the SPR001-201 clinical trial, in the SPR001-202 clinical trial, we conducted a post-hoc analysis which divided the subjects in this study into a poor disease control group and a good disease control, based on their hormone and androgen levels at baseline: poor disease control and good disease control. We observed that tildacerfont-treated patients who were in the poor disease control group had mean maximum reductions in ACTH, 17-OHP, and A4 of approximately 80% compared to baseline at 8:00 a.m., bringing the levels of these key hormones to near normal levels that are used as targets for standard glucocorticoid therapy. In addition, 60% of patients achieved normalization of ACTH levels, one subject at week two prior to discontinuation from the clinical trial and two subjects during month three, and 40% achieved normalization of A4 levels during month three. We are not aware of normalization of these highly elevated hormones in classic CAH patients with any other investigational product candidate without increases to daily steroid doses.

As reflected in the figures below, we observed reductions in these hormones as early as the two-week time point and the reductions increased throughout the 12-week dosing period of the clinical trial. Last observation carried forward is applied for patients missing assessments during the 12-week period in the time course figures.



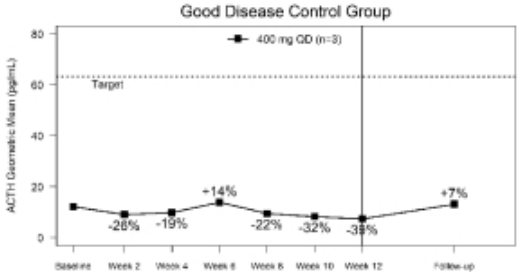


Figure 10. Change from baseline in ACTH (pg/mL) in poor and good disease control patients (SPR001-202).

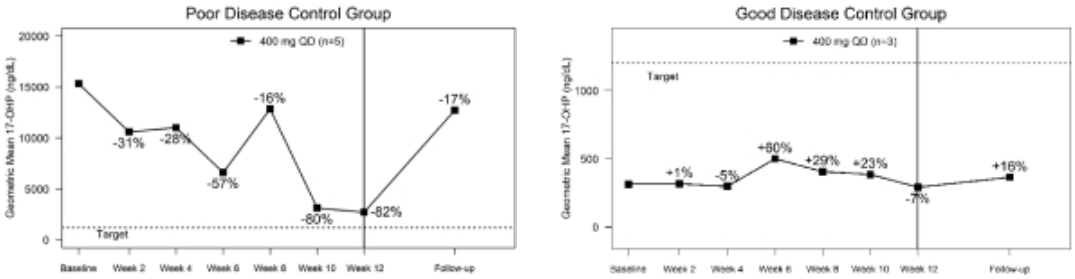


Figure 11. Change from baseline in 17-OHP (ng/dL) in poor and good disease control patients (SPR001-202).

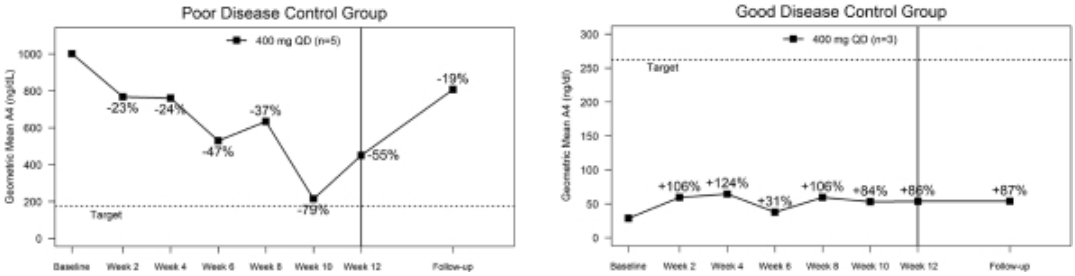


Figure 12. Change from baseline in A4 (ng/dL) in poor and good disease control patients (SPR001-202).

Upon completion of tildacerfont dosing at week 12, in poor disease control patients, levels of these disease-driving hormones increased, approaching their pre-trial baseline levels at follow-up, week 16. The results from this clinical trial are consistent with the ability of tildacerfont to inhibit CRF signaling, leading to reduction of adrenal stimulation by ACTH and the production of androgen precursors. Treatment with tildacerfont in this clinical trial led to this adrenal hormone and androgen reduction without requiring any change in the dose of glucocorticoids.

The best response for each patient in the non-dexamethasone poor disease control group in month three is summarized below. The majority of patients achieved robust reductions. One patient discontinued prior to month three and is not included in this figure. This patient had reductions of 99%, 82% and 68% for ACTH, 17-OHP and A4, respectively, prior to discontinuation.

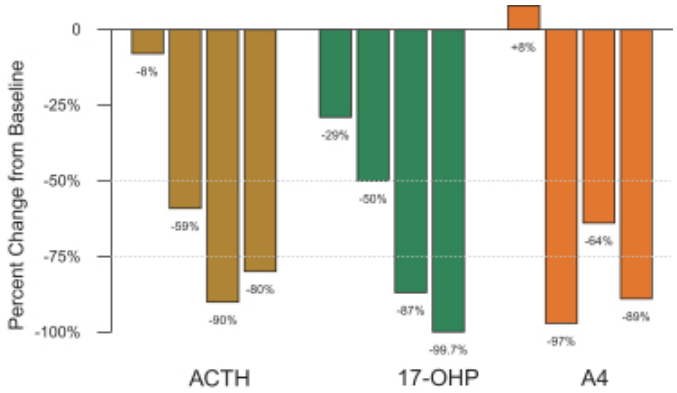


Figure 13. Change from baseline in hormones in poor disease control patients in month three (SPR001-202) at the individual patient level for subjects completing 12 weeks of treatment.

Patients who were in good disease control upon entry to SPR001-202 had mean levels of ACTH, 17-OHP and A4 that were well below the target goal. Administration of tildacerfont to these patients did not lead to significant changes in these levels. We believe that this finding is important because it supports that there may be a limit as to how much tildacerfont can suppress adrenal function, which could reduce the risk that excess dosing with tildacerfont could lead to excessive levels of suppression. This is consistent with the results we observed in SPR001-201.

Tildacerfont was well tolerated in SPR001-202. The most common adverse events were upper respiratory tract infection (n=2) and elevated A1c (n=2) and all four events deemed not related to tildacerfont treatment. The majority of events were grade one in nature. One subject discontinued the clinical trial due to itching without a rash experienced between weeks two and four of treatment.

Patients in poor disease control were receiving supraphysiologic glucocorticoid doses equivalent to approximately 25mg hydrocortisone daily. Based on the levels of ACTH, 17-OHP, and A4 at baseline, these glucocorticoid doses were insufficient to adequately suppress androgen synthesis. However, the addition of tildacerfont lowered the levels of these hormones by approximately 80%, bringing them close to normal levels. In contrast, patients who were in good disease control upon enrollment in the clinical trial were receiving supraphysiologic glucocorticoid doses equivalent to 36mg of hydrocortisone daily. Because the baseline levels of ACTH and A4 were all well below the target goal, we believe that these patients may have been receiving glucocorticoid doses that were higher than would be necessary with the addition of tildacerfont. Furthermore, we believe that treatment of these patients with tildacerfont could enable these patients to reduce their glucocorticoid doses. Over time, we believe that tildacerfont may enable both groups of patients to achieve potentially normal or markedly improved levels of androgen synthesis with minimized levels of glucocorticoid replacement.

Late-Stage Clinical Trials in Classic CAH

We plan to have two ongoing late stage clinical trials in patients with classic CAH by the end of 2020. We recently initiated clinical trial SPR001-203, a randomized, double-blind, placebo-controlled, dose-ranging Phase 2b clinical trial to evaluate the safety and efficacy of tildacerfont in adults with

classic CAH who are exhibiting high levels of adrenal hormones while on stable glucocorticoid dosing. This clinical trial will enroll approximately 72 patients who have both levels of A4 that are at least 1.5-fold higher than the ULN and ACTH levels that are at least twice as high as the ULN. For the first six weeks, patients will receive blinded placebo to assess their adherence to their existing glucocorticoid therapy. Patients who continue to meet all eligibility criteria at the end of this period will enter a three-part treatment period. During Part A, patients will be randomized in a blinded manner to receive placebo, 50mg, 100mg, or 200mg tildacerfont once daily. Dosing in Part A will continue for 12 weeks. The primary endpoint of the clinical trial will be the percentage change in A4 from baseline at week six to week 18 with secondary endpoints consisting of the mean percentage change in ACTH and 17-OHP; and the proportion of patients with levels of ACTH and A4 within the normal range, or levels of 17-OHP less than four times above normal. In Part B, all patients will receive tildacerfont following a proposed dose-escalation protocol based on hormone response in which the dosage can be increased up to 200mg daily. In Part C, all patients will continue receiving tildacerfont with the potential to increase the dose up to 200mg daily for an additional 28 weeks. Patients who achieve good disease control while on supraphysiologic glucocorticoid treatment will have the opportunity to taper down their glucocorticoid dosing in Part C according to a pre-specified algorithm in the protocol. Additional endpoints for this clinical trial include the percentage change in ACTH, 17-OHP, and A4 from baseline through week 58 as well as the proportion of patients with normalized levels of ACTH, A4, or levels of 17-OHP less than four times above normal. Other endpoints include the absolute change in glucocorticoids required to achieve good disease control, clinical outcomes, and patient and clinician reported outcomes.

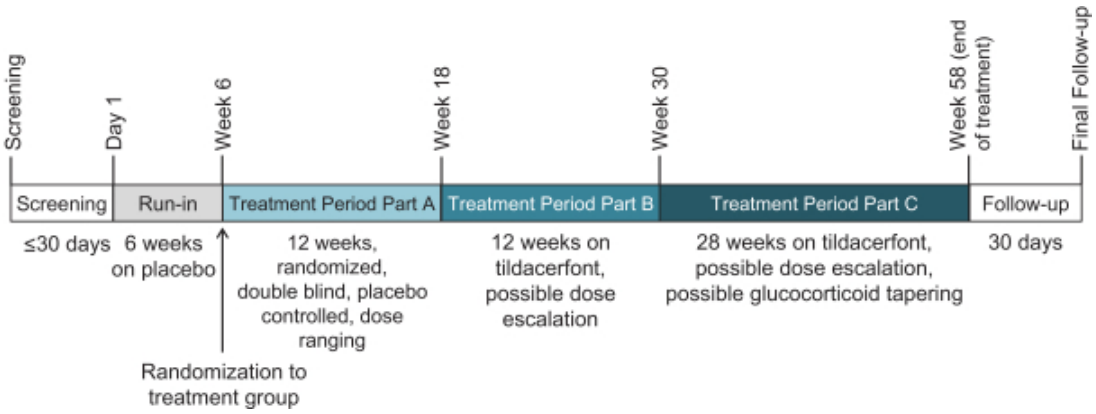


Figure 14. Design of trial SPR001-203

In the third quarter of 2020, we plan to initiate clinical trial SPR001-204, a randomized, double-blind, placebo-controlled clinical trial to evaluate the safety and efficacy of tildacerfont in reducing supraphysiologic glucocorticoid usage in approximately 60 adults with classic CAH in good disease control. This clinical trial is designed in two parts. In the first part of the clinical trial, patients will be randomized to receive 200mg tildacerfont once daily or placebo for 24 weeks. During the second part of the clinical trial, all patients will receive open-label tildacerfont for 28 weeks. Prior to initiation of the 24-week blinded treatment portion of the clinical trial, glucocorticoid dosing of all patients will be standardized to sponsor-provided hydrocortisone dosed three times per day or prednisolone dosed two times per day for a minimum of six weeks. During the tildacerfont treatment period, tapering of glucocorticoids will commence according to a pre-specified algorithm and continue to the lowest level possible (replacement levels only), as long as patients remain well controlled based on standard biomarkers and clinical assessments.

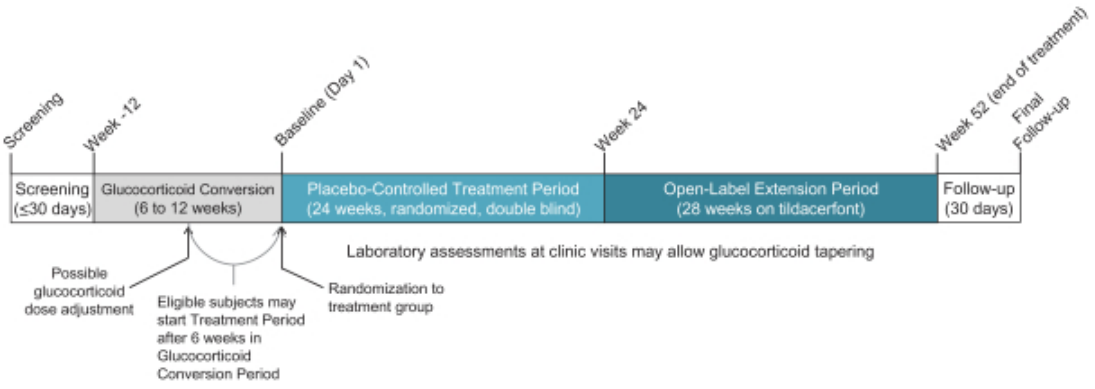


Figure 15. Design of trial SPR001-204

The primary endpoint of this clinical trial will be the absolute change in glucocorticoid dose at week 24. Exploratory endpoints include changes from baseline over 24 weeks and 52 weeks in levels of ACTH, 17-OHP, A4 and other disease-driving hormones of adrenal hyperplasia and androgen overproduction. Effects of tildacerfont on metabolism, cardiac function, body weight, fat mass, BMI, and bone density will be assessed as well as patient-reported measures of quality of life.

Based on analyses of our clinical data to date, we have chosen to target two distinct groups of classic CAH patients with either good disease control or poor disease control. These two groups, which together make up the entire classic CAH patient population, have differing disease challenges centered on excessive adrenal androgen levels or excessive glucocorticoid usage, both of which have the potential to be addressed by treatment with tildacerfont, if approved. We believe our strategy may enable us to observe clinically meaningful outcomes with fewer total patients studied. Additionally, we believe these two clinical trials will provide sufficient patient exposures for our registrational safety database. Assuming positive results in the glucocorticoid reduction study, we plan to meet with the FDA and comparable foreign regulatory authorities in 2022 to discuss registration.

Pediatric Trials of Tildacerfont

We plan to investigate tildacerfont for the treatment of classic CAH in children as young as five years of age, and plan to initiate the clinical development program for tildacerfont in the pediatric classic CAH population in the second half of 2021. At birth, newborns with classic CAH are immediately faced with a risk of adrenal crisis, which produces symptoms that include vomiting, severe dehydration, low blood pressure, and life-threatening shock. Replacement glucocorticoid therapy,

initiated immediately after diagnosis, remains the customary treatment for children with classic CAH. Supraphysiologic glucocorticoid therapy is administered to avoid precocious puberty. The growth suppressing effects of glucocorticoids, however, combined with the early bone growth closure from elevated levels of adrenal androgens, limits the height potential of children impacted by classic CAH. Many patients with classic CAH complete growth prematurely and are ultimately short as adults. We believe tildacerfont has the potential to reduce both the levels of adrenal androgens and the need for excess glucocorticoids. This would enable management of CAH at doses of glucocorticoids near physiologic replacement levels, and could thereby restore normal growth progression through childhood and adolescence. By leveraging our existing Phase 1 program, which includes safety, tolerability, and pharmacokinetics of tildacerfont, in addition to dose modelling to adapt the information from adults to children, we believe we will be able to initiate a Phase 2 clinical trial. We have received initial feedback from the FDA on our planned Phase 2 clinical trial, and we are also in discussions with the EMA to gain their feedback. We estimate that children between the ages of five and 17 years of age represent approximately 20% of the total CAH patient population.

Potential Role of Tildacerfont in the Treatment of Polycystic Ovary Syndrome

PCOS is a hormonal disorder common among females of reproductive age affecting nearly five million females in the United States and approximately 115 million females worldwide. PCOS is characterized by elevated levels of androgens, cysts in the ovaries, and irregular periods. Females with PCOS present with additional symptoms, including hirsutism, alopecia, acne, infertility, weight gain, fatigue, depression and mood changes. The underlying causes of PCOS are unknown. However, excess insulin secretion and low-grade inflammation, which stimulate the polycystic ovaries, have been linked to androgen excess. The source of this androgen excess may be ovarian, adrenal, both adrenal and ovarian, or from other sources. Adrenal androgen excess in PCOS appears to occur independently of ovarian androgen excess, suggesting it may represent an intrinsic, and possible primary source of abnormal synthesis of androgens. Adrenal androgen excess in PCOS does not result from enzymatic deficiencies, rather it represents an altered pituitary responsivity to CRF and ACTH. We believe that tildacerfont has the potential to reduce ACTH and the overall ACTH hyperresponsiveness through a novel mechanism, thereby reducing adrenal androgens. We have identified a subpopulation of patients where elevated levels of adrenal androgens are the cause of disease. We believe that tildacerfont may present a novel mechanism to reduce ACTH and provide a therapeutic option for females with this rare form of PCOS, representing 3-5% of females with PCOS. We plan to file an IND to study tildacerfont in this patient population in the first half of 2021. By leveraging our existing Phase 1 program, which includes safety, tolerability, and pharmacokinetics of tildacerfont, subject to the clearance of our planned IND, we believe we will be able to initiate a Phase 2 proof-of-concept clinical trial in the second half of 2021.

Potential Role of Tildacerfont in the Treatment of Non-Classic CAH

The non-classic form of CAH, or non-classic CAH, also called late-onset CAH, occurs in approximately one in 1,000 of the general population. In females, non-classic CAH is characterized by a generally less severe dysregulation of cortisol production and clinically manifests with a variety of late-onset virilizing symptoms. Females may experience irregular periods, hirsutism, deep voice, and infertility. Some males and females may experience early onset puberty and rapid growth in childhood but short stature in adulthood. Other symptoms of non-classic CAH include low bone density, severe acne, obesity, and elevated lipids. Patients with non-classic CAH typically do not require glucocorticoids to replace deficiencies in cortisol levels. However, they possess high levels of adrenal androgens caused by the inability of their endogenous levels of cortisol to properly regulate ACTH production and adrenal stimulation. Although, genetic mutations have been associated with about 30% to 40% of residual 21-hydroxylase enzymatic activity, approximately 5% of patients presenting with non-classic CAH may have a mutation in one copy of the 21-hydroxylase gene, that results in clinical phenotype that is indistinguishable from classic CAH. We believe that tildacerfont has the potential to bring non-steroidal therapeutic benefit to these non-classic CAH patients with the severe form of disease.

Sales and Marketing

We currently do not have a commercial organization for the marketing, sales, and distribution of pharmaceutical products. We intend to build a highly specialized commercial organization to support the commercialization of tildacerfont, if approved, in the United States and Europe. Given a relatively small number of endocrinologists and specialists treat patients with classic CAH, we believe this market can be effectively addressed with a modest-sized targeted commercial sales force, alongside various high-touch patient initiatives. If tildacerfont is approved for additional indications, we plan to leverage our rare disease commercial infrastructure and expertise to efficiently address those patient populations. We may also either build a commercial infrastructure or opportunistically seek strategic collaborations to benefit from the resources of biopharmaceutical companies specialized in either relevant disease areas or geographies.

License Agreement with Eli Lilly and Company

In May 2016, we entered into a license agreement, or the License Agreement, with Eli Lilly and Company, or Lilly. Pursuant to the terms of the License Agreement, Lilly granted us an exclusive, worldwide, royalty bearing, sublicensable license under certain technology, patent rights, know-how, and proprietary materials, which we refer to collectively as the Lilly IP, and such patents, the Lilly Licensed Patents, relating to the CRF1 receptor antagonist compounds either listed in the License Agreement or covered by patent rights controlled by Lilly, which we refer to collectively as the Lilly Compounds, to research, develop, commercialize, make, have made, use, sell, offer to sell, and import the Lilly Compounds and any products containing an Lilly Compound, including any products containing an Lilly Compound and one or more additional active pharmaceutical ingredients other than an Lilly Compound, which we refer to collectively as the Lilly Licensed Products, for all pharmaceutical uses, including all diagnostic, therapeutic, and prophylactic uses, for human or animal administration, which we refer to as the Field. Lilly retained rights under the Lilly IP and the Lilly Licensed Patents for internal research purposes.

Under the License Agreement, we are required to use commercially reasonable efforts to develop and commercialize an Lilly Licensed Product in the Field. In addition, we are responsible to oversee, monitor, and manage all regulatory interactions, communications, and filings with, and submissions to regulatory authorities, with respect to the Lilly Licensed Products, and shall have final decision making authority regarding all such regulatory activities, including the regulatory and labeling strategy and the content of submissions.

As partial consideration for the rights granted to us under the License Agreement, we made a one-time upfront payment to Lilly of approximately $0.8 million. We are also required to pay Lilly up to an aggregate of $23.0 million upon the achievement of certain clinical and commercialization milestones with respect to the Lilly Licensed Products, only upon the first time each event occurs. In addition, we are required to pay Lilly tiered royalties on annual worldwide net sales of Lilly Licensed Products in the Field, with rates ranging from mid-single-digits to sub-teens, or the Lilly Royalties. The Lilly Royalties shall commence on a country-by-country basis on the date of the first commercial sale of Lilly Licensed Product in such country, and shall expire on a country-by-country basis on the latest of the following dates: (i) the tenth anniversary of the date of first commercial sale in such country, (ii) the expiration in such country of the last-to-expire Lilly Licensed Patent having a valid claim covering the manufacture, use, or sale of the Lilly Licensed Product as commercialized in such country, and (iii) the expiration of any data or regulatory exclusivity period for the Lilly Licensed Product in such country. Upon such expiration, the license granted to us with respect to such country shall be come fully paid-up, royalty-free, perpetual and irrevocable. In addition, the Lilly Royalties may be reduced upon the occurrence of certain events.

The License Agreement shall remain in effect until the expiration of all payment obligations thereunder, unless terminated earlier as follows, (i) termination upon mutual agreement, (ii) unilateral

termination by us, on a worldwide basis or with respect to any country or countries, in our sole discretion, upon 60 days' advance written notice, (iii) unilateral termination by either party upon written notice of the other party's material breach of its obligations under the License Agreement and failure to cure such breach within 90 days after receiving written notice of such breach, and (iv) unilateral termination by either party in the event of a general assignment for the benefit of creditors of the other party or if proceedings are commenced against such other party relating to bankruptcy, insolvency, liquidation, reorganization, winding up, or composition or adjustment of debt, and such proceedings continue undismissed, or an order with respect to the foregoing shall be entered and continue unabated, for a period of more than 60 days.

Intellectual Property

We have developed and continue to expand our patent portfolio for tildacerfont. As of July 31, 2020, we have licensed from Lilly 31 patents in the United States and other countries throughout the world covering composition of matter of tildacerfont, which are expected to expire in 2027, absent any patent term adjustments or extensions. We also have pending applications from the same family in El Salvador, Venezuela, and Pakistan covering tildacerfont, which, if issued, would also be expected to expire in 2027, absent any patent term adjustments or extensions. Additionally, we have licensed patents in the United States, and other countries from Lilly covering methods of making tildacerfont, which, are expected to expire in 2029, absent any patent term adjustments or extensions.

As of July 31, 2020, we have filed our own patent applications in the United States and other countries throughout the world directed to various methods of use and formulations. These patent applications, if issued, would be expected to expire between 2038 and 2039, absent any patent term adjustments or extensions. We have also filed an international patent application and applications in Argentina and Taiwan directed to combination therapies as well as further uses of tildacerfont. Any patents that would issue from this application would be expected to expire no later than 2040, absent any patent term adjustments or extensions. Patents related to tildacerfont may be eligible for patent term extensions in certain jurisdictions, including up to five years in both the United States and the EU, upon approval of a commercial use of the corresponding product by a regulatory agency in the jurisdiction where the patent was granted.

In addition to patent protection, we rely on trade secret protection and know-how to expand our proprietary position around our chemistry, technology, and other discoveries and inventions that we consider important to our business. Under the License Agreement, Lilly granted intellectual property rights to know-how that are important to our business. The License Agreement imposes various development, regulatory, and commercial diligence obligations, payment of milestones and/or royalties, and other obligations.

In addition, we currently have Orphan Drug Designation for tildacerfont for the treatment of patients with classic CAH in the United States and the EU, providing the opportunity to receive seven years of market exclusivity in the United States, which can be extended to seven and a half years if clinical trials are conducted in accordance with an agreed-upon pediatric investigational plan, and ten years of market exclusivity in the EU, which can be extended to 12 years in the EU if clinical trials are conducted in accordance with an agreed-upon pediatric investigational plan.

Upon approval in the United States, as tildacerfont has not previously been approved in the United States for any indication, tildacerfont may be eligible for five years of new chemical entity exclusivity, which would run currently with its seven years of orphan drug exclusivity if we obtain orphan drug exclusivity for its approved uses. Further, upon approval in the EU, as tildacerfont has not previously been approved in the EU for any indication, tildacerfont may be eligible for eight years of data exclusivity, as well as two years of market exclusivity. In the EU, an additional one year of exclusivity

may be obtained if tildacerfont is approved for a new indication that provides a significant clinical benefit.

We also seek to protect our intellectual property in part by entering into confidentiality agreements with companies with whom we share proprietary and confidential information in the course of business discussions, and by having confidentiality terms in our agreements with our employees, consultants, scientific advisors, clinical investigators, and other contractors and also by requiring our employees, commercial contractors, and certain consultants and investigators, to enter into invention assignment agreements that grant us ownership of any discoveries or inventions made by them while in our employ.

In addition to patent protection around tildacerfont, we have also licensed from Lilly patents in the United States and other countries throughout the world directed to composition of matter around other CRF1 antagonists.

Manufacturing

We rely on contract manufacturing organizations, or CMOs, to produce tildacerfont in accordance with the FDA's current Good Manufacturing Practices, or cGMP, regulations for use in our clinical trials. The manufacture of pharmaceuticals for human use is subject to extensive cGMP regulations, which impose various procedural and documentation requirements and govern all areas of record keeping, production processes and controls, personnel training, and quality control. Tildacerfont is manufactured using common chemical engineering and synthetic processes from readily available raw materials. We have entered into manufacturing, development, and clinical supply agreements with our CMOs that provide for the procurement of active pharmaceutical ingredient, or API, and drug product in connection with our planned and future clinical trials. These agreements contain no minimum purchase commitments or other purchase obligations. To date, the CMOs have met our manufacturing requirements, and we expect them to be capable of providing sufficient quantities of API and our drug product to meet estimated full-scale commercial needs. We plan to enter into commercial manufacturing and supply agreements with our CMOs prior to commercialization of tildacerfont, if approved, in the United States and Europe. Our relationships with CMOs are managed by internal personnel with extensive experience in pharmaceutical development and manufacturing.

Our contract manufacturing agreements give us visibility into the expected future cost of producing tildacerfont at commercial scale. Based upon a range of prices of currently marketed therapies indicated for orphan diseases, we believe that our cost of goods for tildacerfont will be highly competitive.

Competition

The commercialization of new drugs is competitive, and we may face worldwide competition from major pharmaceutical companies, specialty pharmaceutical companies, biotechnology companies, and ultimately generic companies. Our competitors may develop or market therapies that are more effective, safer, or less costly than any that we are commercializing, or may obtain regulatory or reimbursement approval for their therapies more rapidly than we may obtain approval for ours.

We are aware of three other companies actively developing treatments for patients with classic CAH. Neurocrine Biosciences, Inc., or Neurocrine, is developing a CRF1 receptor antagonist and has completed a two-week Phase 2 clinical trial in adults with classic CAH. Neurocrine has initiated a Phase 2 clinical trial in a pediatric classic CAH population and a registrational trial for adult patients with classic CAH. BridgeBio Pharma, Inc. plans to evaluate a gene therapy program to treat classic CAH and is currently in pre-clinical development. In addition, Crinetics Pharmaceuticals, Inc. is in pre-clinical development for an oral nonpeptide therapeutic for hyperinsulinism and diseases of ACTH

excess, including CAH, and Millendo Therapeutics, Inc., or Millendo, was developing nevanimibe, an ACAT1 inhibitor, for potential use in classic CAH. In the second quarter of 2020, Millendo announced its decision to discontinue development of nevanimibe for this indication.

In addition, while tildacerfont ultimately seeks to significantly reduce steroid use for patients with classic CAH, patients will continue use of their steroid regimen. As high doses of corticosteroids are the current standard of care for the treatment of classic CAH, in the United States alone, there are more than two dozen companies manufacturing steroid-based products. One such company is Diurnal Group PLC, or Diurnal, which is developing an exogenous cortisol treatment with a modified release intended to more closely match the physiological release profile of cortisol but recently announced a failed Phase 3 clinical trial and placed its United States development activities on hold. Diurnal submitted a Marketing Authorization Application, or MAA, to the EMA in December of 2019.

Government Regulation and Product Approval

As a pharmaceutical company that operates in the United States, we are subject to extensive regulation. Government authorities in the United States (at the federal, state, and local level) and in other countries extensively regulate, among other things, the research, development, testing, manufacturing, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing, and export and import of drug products such as those we are developing. Any drug candidates that we develop must be approved by the FDA before they may be legally marketed in the United States and by the appropriate foreign regulatory agency before they may be legally marketed in foreign countries. Generally, our activities in other countries will be subject to regulation that is similar in nature and scope as that imposed in the United States, although there can be important differences. Additionally, some significant aspects of regulation in the EU are addressed in a centralized way, but country-specific regulation remains essential in many respects.

U.S. Drug Development Process

In the United States, the FDA regulates drugs under the Federal Food, Drug and Cosmetic Act, or FDCA, and implementing regulations. Drugs are also subject to other federal, state, and local statutes and regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may subject an applicant to administrative or judicial sanctions. FDA sanctions could include, among other actions, refusal to approve pending applications, withdrawal of an approval, a clinical hold, warning letters, product recalls or withdrawals from the market, product seizures, total or partial suspension of production or distribution injunctions, fines, refusals of government contracts, restitution, disgorgement, or civil or criminal penalties. The process required by the FDA before a drug may be marketed in the United States generally involves the following:

- completion of extensive preclinical laboratory tests, preclinical animal studies and formulation studies in accordance with applicable regulations, including the FDA's Good Laboratory Practices, or GLP, regulations, and other applicable regulations;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an IRB at each clinical site before each clinical trial may be initiated;
- performance of adequate and well-controlled human clinical trials in accordance with applicable regulations, including the FDA's current good clinical practices, or GCP, regulations to establish the safety and efficacy of the proposed drug for its proposed indication;

- submission to the FDA of a new drug application, or NDA, for a new drug;
- a determination by the FDA within 60 days of its receipt of an NDA to file the NDA for review;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facility or facilities where the drug is produced to assess compliance with the FDA's current cGMP requirements to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality, and purity;
- potential FDA audit of the preclinical and/or clinical trial sites that generated the data in support of the NDA;
- satisfactory completion of an FDA advisory committee review, if applicable; and
- FDA review and approval of the NDA prior to any commercial marketing or sale of the drug in the United States.

Before testing any compounds with potential therapeutic value in humans, the drug candidate enters the preclinical testing stage. Preclinical tests include laboratory evaluations of product chemistry, toxicity, and formulation, as well as animal studies, to assess the potential safety and activity of the drug candidate. The conduct of the preclinical tests must comply with federal regulations and requirements, including GLPs. The sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of the IND. An IND is a request for authorization from the FDA to administer an investigational drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for human trials. Some preclinical testing may continue even after the IND is submitted. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA raises concerns or questions regarding the proposed clinical trials and places the IND on clinical hold within that 30-day time period. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. The FDA may also impose clinical holds on a drug candidate at any time before or during clinical trials due to safety concerns or non-compliance.

Clinical trials involve the administration of the drug candidate to healthy volunteers or patients under the supervision of qualified investigators, generally physicians not employed by or under the trial sponsor's control, in accordance with GCP requirements, which include the requirement that all research subjects provide their informed consent for their participation in any clinical trial. Clinical trials are conducted under protocols detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria and the parameters to be used to monitor subject safety and assess efficacy. Each protocol, and any subsequent amendments to the protocol, must be submitted to the FDA as part of the IND. Further, each clinical trial must be reviewed and approved by an IRB or ethics committee, at or servicing each institution at which the clinical trial will be conducted. An IRB is charged with protecting the welfare and rights of trial participants and considers such items as whether the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the informed consent form that must be provided to each clinical trial subject or his or her legal representative and must monitor the clinical trial until completed. There are also requirements governing the reporting of ongoing clinical trials and completed clinical trial results to public registries.

Human clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- *Phase 1*. The drug is initially introduced into healthy human subjects and tested for safety, dosage tolerance, absorption, metabolism, distribution, and excretion, the side effects associated with increasing doses and if possible, to gain early evidence of effectiveness. In the case of some products for severe or life-threatening diseases, especially when the product may be too inherently toxic to ethically administer to healthy volunteers, the initial human testing is often conducted in patients.

- *Phase 2.* The drug is evaluated in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases or conditions and to determine dosage tolerance, optimal dosage, and dosing schedule.
- *Phase 3.* Clinical trials are undertaken to further evaluate dosage, clinical efficacy and safety in an expanded patient population at geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall benefit/risk ratio of the product and provide an adequate basis for product approval. Generally, two adequate and well-controlled Phase 3 clinical trials are required by the FDA for approval of an NDA.

In some cases, FDA may require, or sponsors may voluntarily pursue, post-approval studies, or Phase 4 clinical trials, that are conducted after initial marketing approval. These trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication. In certain instances, such as with accelerated approval drugs, FDA may mandate the performance of Phase 4 trials. In certain instances, the FDA may mandate the performance of Phase 4 clinical trials as a condition of approval of an NDA.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and written IND safety reports must be submitted to the FDA and the investigators for serious and unexpected adverse events or any finding from tests in laboratory animals that suggests a significant risk for human subjects. Phase 1, Phase 2, and Phase 3 clinical trials may not be completed successfully within any specified period, if at all. The FDA, the IRB, or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the drug has been associated with unexpected serious harm to patients. Additionally, some clinical trials are overseen by an independent group of qualified experts organized by the clinical trial sponsor, known as a data safety monitoring board or committee. This group provides authorization for whether or not a trial may move forward at designated check points based on access to certain data from the trial.

Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the drug as well as finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the drug candidate and, among other things, must develop methods for testing the identity, strength, quality, and purity of the final drug. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the drug candidate does not undergo unacceptable deterioration over its shelf life.

U.S. Review and Approval Processes

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, preclinical studies and clinical trials, along with descriptions of the manufacturing process, analytical tests conducted on the chemistry of the drug, proposed labeling and other relevant information are submitted to the FDA as part of an NDA requesting approval to market the product. Data may come from company-sponsored clinical trials intended to test the safety and effectiveness of a use of a product, or from a number of alternative sources, including studies initiated by investigators. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety and effectiveness of the investigational drug product to the satisfaction of the FDA. The submission of an NDA is subject to the payment of substantial user fees; a waiver of such fees may be obtained under certain limited circumstances.

In addition, the Pediatric Research Equity Act, or PREA, requires a sponsor to conduct pediatric clinical trials for most drugs, for a new active ingredient, new indication, new dosage form, new dosing regimen, or new route of administration. Under PREA, original NDAs and supplements must contain a pediatric assessment unless the sponsor has received a deferral or waiver. The required assessment must evaluate the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations and support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The sponsor or FDA may request a deferral of pediatric clinical trials for some or all of the pediatric subpopulations. A deferral may be granted for several reasons, including a finding that the drug is ready for approval for use in adults before pediatric clinical trials are complete or that additional safety or effectiveness data needs to be collected before the pediatric clinical trials begin. The FDA must send a non-compliance letter to any sponsor that fails to submit the required assessment, keep a deferral current or fails to submit a request for approval of a pediatric formulation. Unless otherwise required by regulation, the Pediatric Research Equity Act does not apply to any drug for an indication for which orphan designation has been granted. However, if only one indication for a product has orphan designation, a pediatric assessment may still be required for any applications to market that same product for the non-orphan indication(s).

The FDA reviews all NDAs submitted before it accepts them for filing and may request additional information rather than accepting an NDA for filing. The FDA must make a decision on accepting an NDA for filing within 60 days of receipt. Once the submission is accepted for filing, the FDA begins an in-depth review of the NDA. Under the Prescription Drug User Fee Act, or PDUFA, guidelines that are currently in effect, the FDA has a goal of ten months from the date of “filing” of a standard NDA for a new molecular entity to review and act on the submission. This review typically takes 12 months from the date the NDA is submitted to FDA because the FDA has approximately two months to make a “filing” decision after it the application is submitted The FDA does not always meet its PDUFA goal dates for standard and priority NDAs, and the review process is often significantly extended by FDA requests for additional information or clarification.

After the NDA submission is accepted for filing, the FDA reviews the NDA to determine, among other things, whether the proposed product is safe and effective for its intended use and whether the product is being manufactured in accordance with cGMP to assure and preserve the product’s identity, strength, quality, and purity. The FDA may refer applications for novel drug products or drug products which present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation, and a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions and typically follows the advisory committee’s recommendations.

Before approving an NDA, the FDA will inspect the facilities at which the product is manufactured. The FDA will not approve the product unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA, the FDA may inspect one or more clinical sites to assure compliance with GCP requirements. After the FDA evaluates the application, manufacturing process, and manufacturing facilities, it may issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications. A Complete Response Letter indicates that the review cycle of the application is complete and the application will not be approved in its present form. A Complete Response Letter usually describes all of the specific deficiencies in the NDA identified by the FDA. The Complete Response Letter may require additional clinical data and/or (an) additional pivotal Phase 3 clinical trial(s), and/or other significant and time-consuming requirements related to clinical trials, preclinical studies, or manufacturing. If a Complete Response Letter is issued, the applicant may either resubmit the NDA, addressing all of the deficiencies identified in the letter, or

withdraw the application. Even if such data and information is submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval.

If a product receives regulatory approval, the approval may be significantly limited to specific diseases and dosages or the indications for use may otherwise be limited, which could restrict the commercial value of the product. Further, the FDA may require that certain contraindications, warnings, or precautions be included in the product labeling or may condition the approval of the NDA on other changes to the proposed labeling, development of adequate controls and specifications, or a commitment to conduct one or more post-market studies or clinical trials. For example, the FDA may require Phase 4 testing, which involves clinical trials designed to further assess a drug safety and effectiveness, and may require testing and surveillance programs to monitor the safety of approved products that have been commercialized. The FDA may also determine that a risk evaluation and mitigation strategy, or REMS, is necessary to assure the safe use of the drug. If the FDA concludes a REMS is needed, the sponsor of the NDA must submit a proposed REMS; the FDA will not approve the NDA without an approved REMS, if required. A REMS could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries, and other risk minimization tools.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug intended to treat a rare disease or condition, which is a disease or condition that affects fewer than 200,000 individuals in the United States or, if it affects more than 200,000 individuals in the United States, there is no reasonable expectation that the cost of developing and making a drug product available in the United States for this type of disease or condition will be recovered from sales of the product. Orphan designation must be requested before submitting an NDA. After the FDA grants orphan designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Orphan designation does not convey any advantage in or shorten the duration of the regulatory review and approval process.

If a product that has orphan designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications to market the same drug or biological product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity or inability to manufacture the product in sufficient quantities. The designation of such drug also entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers. Competitors, however, may receive approval of different products for the indication for which the orphan product has exclusivity or obtain approval for the same product but for a different indication for which the orphan product has exclusivity. Orphan exclusivity also could block the approval of one of our products for seven years if a competitor obtains approval of the same drug as defined by the FDA or if our product candidate is determined to be contained within the competitor’s product for the same indication or disease. If an orphan designated product receives marketing approval for an indication broader than what is designated, it may not be entitled to orphan exclusivity. Orphan drug status in the EU has similar but not identical benefits in that jurisdiction.

Post-Approval Requirements

Any drug products for which we receive FDA approvals are subject to continuing regulation by the FDA, including, among other things, manufacturing, record-keeping requirements, reporting of adverse experiences with the product, providing the FDA with updated safety and efficacy information, product sampling and distribution requirements, and complying with FDA promotion and advertising requirements, which include, among others, standards for direct-to-consumer advertising, restrictions

on promoting drugs for uses or in patient populations that are not described in the drug's approved labeling (known as "off-label use"), limitations on industry-sponsored scientific and educational activities, and requirements for promotional activities involving the internet. Although physicians may prescribe legally available drugs for off-label uses, manufacturers may not market or promote such off-label uses.

In addition, quality control and manufacturing procedures must continue to conform to applicable manufacturing requirements after approval to ensure the long-term stability of the drug product. We rely, and expect to continue to rely, on third parties for the production of clinical and commercial quantities of our products in accordance with cGMP regulations. cGMP regulations require among other things, quality control and quality assurance as well as the corresponding maintenance of records and documentation and the obligation to investigate and correct any deviations from cGMP requirements. Drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP and other laws. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain cGMP compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters, or untitled letters;
- clinical holds on clinical trials;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment, or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases, and other communications containing warnings or other safety information about the product; or

injunctions or the imposition of civil or criminal penalties.

The FDA also may require post-marketing testing, known as Phase 4 testing, and surveillance to monitor the effects of an approved product. Discovery of previously unknown problems with a product or the failure to comply with applicable FDA requirements can have negative consequences, including adverse publicity, judicial or administrative enforcement, warning letters from the FDA, mandated corrective advertising or communications with doctors, and civil or criminal penalties, among others. Newly discovered or developed safety or effectiveness data may require changes to a product's approved labeling, including the addition of new warnings and contraindications, and also may require the implementation of other risk management measures.

The FDA closely regulates the marketing, labeling, advertising, and promotion of drug products. A company can make only those claims relating to safety and efficacy, purity, and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising, and potential civil and criminal penalties. Physicians may prescribe, in their independent professional medical judgment, legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products. The federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined companies from engaging in off-label promotion. The FDA and other regulatory agencies have also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. However, companies may share truthful and not misleading information that is otherwise consistent with a product's FDA-approved labelling.

In addition, the distribution of prescription pharmaceutical products is subject to the Prescription Drug Marketing Act, or PDMA, which regulates the distribution of drugs and drug samples at the federal level, and sets minimum standards for the registration and regulation of drug distributors by the states. Both the PDMA and state laws limit the distribution of prescription pharmaceutical product samples and impose requirements to ensure accountability in distribution.

Marketing Exclusivity

Market exclusivity provisions under the FDCA can also delay the submission or the approval of certain marketing applications. The FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to obtain approval of an NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. During the exclusivity period, the FDA may not approve or even accept for review an abbreviated new drug application, or ANDA, or a 505(b)(2) NDA submitted by another company for another drug based on the same active moiety, regardless of whether the drug is intended for the same indication as the original innovative drug or for another indication, where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement to one of the patents listed with the FDA by the innovator NDA holder.

The FDCA also provides three years of marketing exclusivity for an NDA, or supplement to an existing NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example new indications, dosages or strengths of an existing drug. This three-year exclusivity covers only the modification for which the drug received approval on the basis of the new clinical investigations and does not prohibit the FDA from accepting ANDAs or 505(b)(2) NDAs for drugs referencing the approved application for review. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA. However, an applicant submitting a full NDA would be required to conduct or obtain a right of reference to all of the preclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

Orphan drug exclusivity, as described above, may offer a seven-year period of marketing exclusivity, except in certain circumstances. Pediatric exclusivity is another type of non-patent market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity

periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric trial in accordance with an FDA-issued "Written Request" for such a trial.

Other U.S. Healthcare Laws and Compliance Requirements

Although we currently do not have any products on the market, we are and, upon approval and commercialization, will be subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which we conduct our business. In the United States, such laws include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, privacy and security, price reporting, and physician sunshine laws and regulations.

The federal Anti-Kickback Statute prohibits, among other things, any person or entity, from knowingly and willfully offering, paying, soliciting, or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or in return for purchasing, leasing, ordering, or arranging for the purchase, lease or order of any item or service reimbursable under Medicare, Medicaid or other federal healthcare programs. The term remuneration has been interpreted broadly to include anything of value. The Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on the one hand and prescribers, purchasers, and formulary managers on the other. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution. The exceptions and safe harbors are drawn narrowly and practices that involve remuneration that may be alleged to be intended to induce prescribing, purchasing, or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor.

Additionally, the intent standard under the Anti-Kickback Statute and the criminal healthcare fraud statutes (discussed below) was amended by the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, together with subsequent amendments and regulations, collectively, the Affordable Care Act, to a stricter standard such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, the Affordable Care Act codified case law that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act (discussed below).

The federal False Claims Act prohibits, among other things, any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to, or approval by, the federal government or knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim includes "any request or demand" for money or property presented to the U.S. government. Several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies' marketing of the product for unapproved, and thus non-covered, uses.

HIPAA also created new federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payors and knowingly and willfully falsifying,

concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items, or services. Also, many states have similar fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor.

Additionally, the federal Physician Payments Sunshine Act within the Affordable Care Act, and its implementing regulations, require that certain manufacturers of drugs, devices, biological and medical supplies for which payment is available under Medicare, Medicaid, or the Children's Health Insurance Program (with certain exceptions) annually report information related to certain payments or other transfers of value made or distributed to physicians (as defined by statute), certain other healthcare providers beginning in 2022 and teaching hospitals, certain ownership and investment interests held by physicians and their immediate family members.

We may also be subject to data privacy and security regulations by both the federal government and the states in which we conduct our business. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and its implementing regulations, impose requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to business associates, independent contractors or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

In order to distribute products commercially, we must also comply with state laws that require the registration of manufacturers and wholesale distributors of pharmaceutical products in a state, including, in certain states, manufacturers, and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain. Several states have enacted legislation requiring pharmaceutical companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, track, and report gifts, compensation and other remuneration made to physicians and other healthcare providers, clinical trials and other activities, and/or register their sales representatives, as well as to prohibit pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical companies for use in sales and marketing, and to prohibit certain other sales and marketing practices. All of our activities are potentially subject to federal and state consumer protection and unfair competition laws.

If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private "qui tam" actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, and the curtailment

or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Pharmaceutical Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we or our collaborators obtain regulatory approval. In the United States and markets in other countries, sales of any products for which we or our collaborators receive regulatory approval for commercial sale will depend, in part, on the extent to which third-party payors provide coverage, and establish adequate reimbursement levels for such drug products.

In the United States, third-party payors include federal and state healthcare programs, government authorities, private managed care providers, private health insurers, and other organizations. Third-party payors are increasingly challenging the price, examining the medical necessity and reviewing the cost-effectiveness of medical drug products and medical services, in addition to questioning their safety and efficacy. Such payors may limit coverage to specific drug products on an approved list, also known as a formulary, which might not include all of the FDA-approved drugs for a particular indication. We or our collaborators may need to conduct expensive pharmaco-economic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain the FDA approvals. Nonetheless, our product candidates may not be considered medically necessary or cost-effective. Moreover, the process for determining whether a third-party payor will provide coverage for a drug product may be separate from the process for setting the price of a drug product or for establishing the reimbursement rate that such a payor will pay for the drug product. A payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a drug product does not assure that other payors will also provide coverage for the drug product. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development.

If we elect to participate in certain governmental programs, we may be required to participate in discount and rebate programs, which may result in prices for our future products that will likely be lower than the prices we might otherwise obtain. For example, drug manufacturers participating under the Medicaid Drug Rebate Program must pay rebates on prescription drugs to state Medicaid programs. Under the Veterans Health Care Act, or VHCA, drug companies are required to offer certain drugs at a reduced price to a number of federal agencies, including the U.S. Department of Veterans Affairs and Department of Defense, the Public Health Service and certain private Public Health Service designated entities in order to participate in other federal funding programs, including Medicare and Medicaid. Recent legislative changes require that discounted prices be offered for certain U.S. Department of Defense purchases for its TRICARE program via a rebate system. Participation under the VHCA also requires submission of pricing data and calculation of discounts and rebates pursuant to complex statutory formulas, as well as the entry into government procurement contracts governed by the Federal Acquisition Regulations. If our products are made available to authorized users of the Federal Supply Schedule of the General Services Administration, additional laws and requirements apply.

Different pricing and reimbursement schemes exist in other countries. In Europe, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national health care systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular drug candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on health care costs in general, particularly prescription drugs, has become very

intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any product candidates for which we or our collaborators receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. In addition, emphasis on managed care in the United States has increased and we expect will continue to increase the pressure on pharmaceutical pricing. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we or our collaborators receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Healthcare Reform

A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medical products and services, implementing reductions in Medicare and other healthcare funding and applying new payment methodologies. For example, in March 2010, the Affordable Care Act was enacted, which affected existing government healthcare programs and resulted in the development of new programs.

Among the Affordable Care Act's provisions of importance to the pharmaceutical industry, in addition to those otherwise described above, are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively, and a cap on the total rebate amount for innovator drugs at 100% of the Average Manufacturer Price, or AMP;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 70% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturers' outpatient drugs to be covered under Medicare Part D;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals, including individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

Since its enactment, there have been judicial and Congressional challenges to certain aspects of the

Affordable Care Act, as well as recent efforts by the Trump administration to repeal or replace certain aspects of the Affordable Care Act. For example, the Tax Cuts and Jobs Act of 2017, or the Tax

Act, was enacted, which includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the Affordable Care Act on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." On December 14, 2018, a U.S. District Court Judge in the Northern District of Texas ruled that the individual mandate is a critical and inseverable feature of the Affordable Care Act, and therefore, because it was repealed as part of the Tax Act, the remaining provisions of the Affordable Care Act are invalid as well. Additionally, on December 18, 2019, the U.S. Court of Appeals for the 5th Circuit ruled that that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the Affordable Care Act are invalid as well. On March 2, 2020, the U.S. Supreme Court granted the petitions for writs of certiorari to review this case, although it is unclear when or how the Supreme Court will rule. It is also unclear how other efforts to challenge, repeal or replace the Affordable Care Act will impact the Affordable Care Act and our business.

Other legislative changes have also been proposed and adopted in the United States since the Affordable Care Act was enacted. On August 2, 2011, the Budget Control Act of 2011, among other things, included aggregate reductions to Medicare payments to providers of 2% per fiscal year, which went into effect on April 1, 2013. The Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, which was signed into law in March 2020 and is designed to provide financial support and resources to individuals and businesses affected by the COVID-19 pandemic, suspended the 2% Medicare sequester from May 1, 2020 through December 31, 2020 and extended the sequester by one year, through 2030. In addition, in January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

There has also been heightened governmental scrutiny recently over the manner in which pharmaceutical companies set prices for their marketed products, which has resulted in several Congressional inquiries and proposed federal legislation, as well as state efforts, designed to, among other things, bring more transparency to product pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. In addition, on March 10, 2020, the Trump administration sent "principles" for drug pricing to Congress, calling for legislation that would, among other things, cap Medicare Part D beneficiary out-of-pocket pharmacy expenses, provide an option to cap Medicare Part D beneficiary monthly out-of-pocket expenses, and place limits on pharmaceutical price increases. Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs.

We anticipate that these new laws will result in additional downward pressure on coverage and the price that we receive for any approved product, and could seriously harm our business. Any reduction in reimbursement from Medicare and other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our products. In addition, it is possible that there will be further legislation or regulation that could harm our business, financial condition, and results of operations.

Data Privacy and Security

We may also be subject to federal, state and foreign data privacy and security laws and regulations. In the United States, numerous federal and state laws and regulations, including state data breach notification laws, state health information privacy laws, and federal and state consumer protection laws and regulations (e.g., Section 5 of the FTC Act), govern the collection, use, disclosure, and protection of health-related and other personal information could apply to our operations or the

operations of our partners. HIPAA, as amended by HITECH, and its implementing regulations, impose requirements relating to the privacy, security and transmission of individually identifiable health information on certain health care providers, health plans and health care clearinghouses, known as covered entities, as well as their business associates that perform certain services that involve creating, receiving, maintaining or transmitting individually identifiable health information for or on behalf of such covered entities. Entities that are found to be in violation of HIPAA as the result of a breach of unsecured protected health information, a complaint about privacy practices or an audit by HHS, may be subject to significant civil, criminal and administrative fines and penalties and/or additional reporting and oversight obligations if required to enter into a resolution agreement and corrective action plan with HHS to settle allegations of HIPAA non-compliance. Further, entities that knowingly obtain, use, or disclose individually identifiable health information maintained by a HIPAA covered entity in a manner that is not authorized or permitted by HIPAA may be subject to criminal penalties.

Even when HIPAA does not apply, according to the FTC, violating consumers' privacy rights or failing to take appropriate steps to keep consumers' personal information secure may constitute unfair acts or practices in or affecting commerce in violation of Section 5 of the FTC Act. The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities. Individually identifiable health information is considered sensitive data that merits stronger safeguards.

In addition, state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts. By way of example, California recently enacted the California Consumer Privacy Act, or CPPA, which creates new individual privacy rights for California consumers (as defined in the law) and places increased privacy and security obligations on entities handling certain personal data of consumers or households. The California Consumer Privacy Act, or the CCPA, requires covered companies to provide new disclosure to consumers about such companies' data collection, use and sharing practices, provide such consumers new ways to opt-out of certain sales or transfers of personal information, and provide consumers with additional causes of action. The CCPA became effective on January 1, 2020, and the California Attorney General may bring enforcement actions for violations beginning July 1, 2020. The CCPA has been amended from time to time, and it remains unclear what, if any, further modifications will be made to this legislation or how it will be interpreted. As currently written, the CCPA may impact our business activities and exemplifies the vulnerability of our business to the evolving regulatory environment related to personal data and protected health information.

We also are or will become subject to privacy laws in the jurisdictions in which we are established or in which we sell or market our products or run clinical trials. For example, in the EU we are subject to Regulation (EU) 2016/679, the GDPR, in relation to our collection, control, processing, and other use of personal data (i.e. data relating to an identifiable living individual). We process personal data in relation to participants in our clinical trials in the European Economic Area, or EEA, including the health and medical information of these participants. The GDPR is directly applicable in each EU and EEA Member State, however, it provides that EU and EEA Member States may introduce further conditions, including limitations which could limit our ability to collect, use and share personal data (including health and medical information), or could cause our compliance costs to increase, ultimately having an adverse impact on our business. The GDPR imposes onerous accountability obligations requiring data controllers and processors to maintain a record of their data processing and implement policies as part of its mandated privacy governance framework. It also requires data controllers to be transparent and disclose to data subjects (in a concise, intelligible and easily accessible form) how their personal information is to be used, imposes limitations on retention of personal data; defines for the first time

pseudonymized (i.e., key-coded) data; introduces mandatory data breach notification requirements; and sets higher standards for data controllers to demonstrate that they have obtained valid consent for certain data processing activities. We are also subject to EEA rules with respect to cross-border transfers of personal data out of the EEA. Recent legal developments in the EU have created complexity and uncertainty regarding transfers of personal data from the EEA to the United States, e.g. on July 16, 2020, the Court of Justice of the European Union, or the CJEU, invalidated the EU-US Privacy Shield Framework, or the Privacy Shield, under which personal data could be transferred from the EEA to US entities who had self-certified under the Privacy Shield scheme. While the CJEU upheld the adequacy of the standard contractual clauses (a standard form of contract approved by the European Commission as an adequate personal data transfer mechanism, and potential alternative to the Privacy Shield), it made clear that reliance on them alone may not necessarily be sufficient in all circumstances. Use of the standard contractual clauses must now be assessed on a case-by-case basis taking into account the legal regime applicable in the destination country, in particular applicable surveillance laws and rights of individuals and additional measures and/or contractual provisions may need to be put in place, however, the nature of these additional measures is currently uncertain. As supervisory authorities issue further guidance on personal data export mechanisms, including circumstances where the standard contractual clauses cannot be used, and/or start taking enforcement action, we could suffer additional costs, complaints and/or regulatory investigations or fines, and/or if we are otherwise unable to transfer personal data between and among countries and regions in which we operate, it could affect the manner in which we provide our services, the geographical location or segregation of our relevant systems and operations, and could adversely affect our financial results.

We are subject to the supervision of local data protection authorities in those EU jurisdictions where we are established or otherwise subject to the GDPR, and we maintain an office in Switzerland, which has its own set of stringent privacy and data protection laws and regulations. Fines for certain breaches of the GDPR are significant: up to the greater of €20 million or 4% of total global annual turnover. Further, following the withdrawal of the UK from the EU on January 31, 2020, pursuant to the transitional arrangements agreed between the UK and the EU, we will have to comply with the GDPR and separately the GDPR as implemented in the UK, each regime having the ability to fine up to the greater of €20 million/ £17 million or 4% of global turnover. The relationship between the UK and the EU in relation to certain aspects of data protection law remains unclear, including how data transfers between EU member states and the UK will be treated. These changes may lead to additional compliance costs and could increase our overall risk. In addition to the foregoing, a breach of the GDPR or other applicable privacy and data protection laws and regulations could result in regulatory investigations, reputational damage, orders to cease / change our use of data, enforcement notices, or potential civil claims including class action type litigation.

The U.S. Foreign Corrupt Practices Act

The U.S. Foreign Corrupt Practices Act of 1977, or FCPA, prohibits any U.S. individual or business from paying, offering, or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring the company to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international operations.

Europe / Rest of World Government Regulation

In addition to regulations in the United States, we will be subject to a variety of regulations in other jurisdictions governing, among other things, clinical trials and any commercial sales and distribution of our products. Whether or not we or our potential collaborators obtain FDA approval for a product, we

must obtain the requisite approvals from regulatory authorities in foreign countries prior to the commencement of clinical trials or marketing of the product in those countries. Certain countries outside of the United States have a similar process that requires the submission of a clinical trial application much like the IND prior to the commencement of human clinical trials. In the EU, for example, a CTA must be submitted to each country's national health authority and an independent ethics committee, much like the FDA and IRB, respectively. Once the CTA is approved in accordance with a country's requirements, clinical trial development may proceed.

The requirements and process governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, the clinical trials are conducted in accordance with GCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki.

To obtain regulatory approval of an investigational drug or biological product under the EU regulatory systems, we must submit a marketing authorization application either under the so-called centralized or national authorization procedures.

Centralized procedure. The centralized procedure provides for the grant of a single marketing authorization, which is issued by the European Commission based on the opinion of the Committee for Medicinal Products for Human Use, or the CHMP, of the EMA and that is valid in all EU member states, as well as Iceland, Liechtenstein and Norway. The Centralized Procedure is mandatory for certain types of products, such as biotechnology medicinal products, orphan medicinal products, and medicines that contain a new active substance indicated for the treatment of AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune and viral diseases. The Centralized Procedure is optional for products containing a new active substance not yet authorized in the EEA, or for products that constitute a significant therapeutic, scientific or technical innovation or which are in the interest of public health in the EU. Under the Centralized Procedure the maximum timeframe for the evaluation of an MAA is 210 days (excluding clock stops, when additional written or oral information is to be provided by the applicant in response to questions asked by the CHMP). Accelerated evaluation might be granted by the CHMP in exceptional cases, when the authorization of a medicinal product is of major interest from the point of view of public health and in particular from the viewpoint of therapeutic innovation. Under the accelerated procedure the standard 210-day review period is reduced to 150 days.

- *National authorization procedures*. There are also two other possible routes to authorize medicinal products in several EU countries, which are available for investigational medicinal products that fall outside the scope of the centralized procedure:
- *Decentralized procedure*. Using the decentralized procedure, an applicant may apply for simultaneous authorizations in more than one EU country of medicinal products that have not yet been authorized in any EU Member State and that do not fall within the mandatory scope of the centralized procedure.
- *Mutual recognition procedure*. In the mutual recognition procedure, a medicine is first authorized in one EU Member State, in accordance with the national procedures of that country. Following this, further marketing authorizations can be sought from other EU countries in a procedure whereby the countries concerned agree to recognize the validity of the original, national marketing authorization.

In the EEA, upon receiving marketing authorization, new chemical entities generally receive eight years of data exclusivity and an additional two years of market exclusivity. If granted, data exclusivity prevents regulatory authorities in the EU from referencing the innovator's data to assess a generic application. During the additional two-year period of market exclusivity, a generic marketing authorization can be submitted, and the innovator's data may be referenced, but no generic product

can be marketed until the expiration of the market exclusivity. However, there is no guarantee that a product will be considered by the EU's regulatory authorities to be a new chemical entity and qualify for data exclusivity.

The EMA grants orphan drug designation to promote the development of products that may offer therapeutic benefits for life-threatening or chronically debilitating conditions affecting not more than five in 10,000 people in the EU. In addition, orphan drug designation can be granted if the drug is intended for a life threatening, seriously debilitating or serious and chronic condition in the EU and without incentives it is unlikely that sales of the drug in the EU would be sufficient to justify developing the drug. Orphan drug designation is only available if there is no other satisfactory method approved in the EU of diagnosing, preventing or treating the condition, or if such a method exists, the proposed orphan drug will be of significant benefit to patients. Orphan drug designation provides opportunities for free protocol assistance, fee reductions for access to the centralized regulatory procedures and ten years of market exclusivity following drug approval, which can be extended to 12 years if trials are conducted in accordance with an agreed-upon pediatric investigational plan. The exclusivity period may be reduced to six years if the designation criteria are no longer met, including where it is shown that the product is sufficiently profitable not to justify maintenance of market exclusivity.

For other countries outside of the EU, such as countries in Eastern Europe, Latin America or Asia, the requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary from country to country. In all cases, again, the clinical trials are conducted in accordance with GCP and the applicable regulatory requirements and the ethical principles that have their origin in the Declaration of Helsinki.

If we or our potential collaborators fail to comply with applicable foreign regulatory requirements, we may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

Employees

As of June 30, 2020, we employed 15 employees, all of whom are full-time, consisting of clinical, research, operations, regulatory, and finance personnel. Four of our employees hold Ph.D. or M.D. degrees. None of our employees is subject to a collective bargaining agreement. We consider our relationship with our employees to be good.

Facilities

We have entered into a lease agreement for approximately 8,267 square feet of space for our headquarters in Daly City, California, which expires in late 2025. Due to ongoing construction at this location, we currently conduct our operations in a temporary location in Daly City, California. We believe that our existing facilities, and the facilities that we have leased but have not yet entered into, are adequate to meet our current needs, and that suitable additional alternative spaces will be available in the future on commercially reasonable terms.

Legal Proceedings

We are currently not a party to any material legal proceedings.

MANAGEMENT

Executive Officers and Directors

The following table sets forth information regarding our executive officers and directors as of June 30, 2020.

Name	Age	Position
Executive Officers:		
Richard King	55	Chief Executive Officer and Director
Michael Grey	67	Executive Chairman
Samir Gharib	38	Chief Financial Officer
Non-Employee Directors:		
Tiba Aynechi, Ph.D.	44	Director
Dina Chaya, Ph.D., C.F.A.	48	Director
Jonas Hansson, M.Sc.	46	Director
Bali Muralidhar, M.D., Ph.D.	40	Director
Niall O'Donnell, Ph.D.	48	Director
Camilla V. Simpson, M.Sc.	48	Director

(1) Member of the compensation committee.

(2) Member of the nominating and corporate governance committee.

(3) Member of the audit committee.

Executive Officers

Richard King has served as our Chief Executive Officer and a member of our board of directors since October 2019, and was our interim Chief Executive Officer from May 2019 to October 2019. From April 2017 to October 2018, Mr. King was the Chief Operating Officer of Adamas Pharmaceuticals, Inc., a pharmaceutical company, where he was responsible for all operational aspects leading to the successful launch of a novel Parkinsons disease medication. From April 2016 to April 2017, Mr. King was the Chief Operating Officer of The Scripps Research Institute, where he was responsible for strategic planning, business development, finance, human resources, facilities, information technology, and research services. From April 2015 to April 2016, and from October 2018 to May 2019, Mr. King provided consulting services to various biopharmaceutical companies relating to strategic and tactical matters. From March 2010 to April 2015, Mr. King was the President and Chief Executive Officer, as well as a director, of AcelRx Pharmaceuticals, Inc., a specialty pharmaceutical company developing new pain medications. From February 2007 to June 2009, Mr. King was the President and Chief Operating Officer of the biotechnology company Tercica, Inc., until its acquisition by Ipsen, S.A. Mr. King received a B.Sc. in chemical engineering from the University of Surrey in the U.K. and an M.B.A. from the Manchester Business School in the U.K.

We believe Mr. King's extensive experience managing and leading companies within the pharmaceutical and biotechnology industries qualify him to serve on our board of directors.

Michael Grey has served as Executive Chairman of our board of directors since April 2017. In addition, Mr. Grey has served as Chairman of Mirum Pharmaceuticals, Inc., or Mirum, a biopharmaceutical company, since January 2020, and has been a director of Mirum since May 2018. Mr. Grey previously served as Executive Chairman of Mirum from March 2019 to December 2019 and Chief Executive Officer of Mirum from May 2018 to March 2019. Mr. Grey has served as Executive Chairman of Amplyx Pharmaceuticals, Inc., or Amplyx, a pharmaceutical company, since January 2017, and Reneo Pharmaceuticals, Inc., or Reneo, a pharmaceutical company, since December 2017. He has also served as a venture partner at Pappas Ventures, a venture capital firm, since January

2010, and as a director of Curzion Pharmaceuticals, Inc., or Curzion, which was acquired in April 2020 by Horizon Therapeutics Public Limited Company, or Horizon, a pharmaceutical company, from January 2019 to April 2020. Mr. Grey served from January 2019 to September 2019 as President and Chief Executive Officer of Curzion, from October 2015 to January 2017 as President and Chief Executive Officer of Amplyx, and from September 2014 to December 2017 as Chairman and Chief Executive Officer of Reneo. From February 2011 to June 2014, Mr. Grey served as President and Chief Executive Officer of Lumena Pharmaceuticals, Inc., or Lumena, which was acquired by Shire plc, or Shire, in June 2014. Mr. Grey has more than 45 years of experience in the pharmaceutical and biotechnology industries and has held senior positions at a number of companies, including President and Chief Executive Officer of SGX Pharmaceuticals, Inc. (sold to Lilly in 2008), President and Chief Executive Officer of Trega Biosciences, Inc. (sold to LION Bioscience, Inc. in 2001), and President of BioChem Therapeutic Inc. Prior to these, Mr. Grey served in various roles with Glaxo, Inc., and Glaxo Holdings PLC, culminating in his position as Vice President, Corporate Development and director of international licensing. Mr. Grey also serves on the boards of directors of BioMarin Pharmaceutical Inc., or BioMarin, Horizon, and Mirati Therapeutics Inc., each public biotechnology companies. Mr. Grey received a B.S. in chemistry from the University of Nottingham in the UK.

We believe Mr. Grey's extensive experience managing and leading both early stage and established companies within the pharmaceutical and biotechnology industries qualify him to serve on our board of directors.

Samir Gharib has been our Chief Financial Officer since May 2020. From September 2019 to May 2020, Mr. Gharib provided consulting services to various companies with Benchmark Financial Partners, or Benchmark, a strategic financial advisory firm. From October 2018 to September 2019, Mr. Gharib was the Chief Financial Officer of Stemedica Cell Technologies, Inc., a global pharmaceutical company focused on the development and commercialization of cell therapeutics for underserved medical conditions. From September 2017 to October 2018, Mr. Gharib served as Managing Director of Benchmark. From October 2013 to September 2017, Mr. Gharib held positions of increasing responsibility at Revance Therapeutics, Inc., a commercial-stage biotechnology company, including Vice President of Finance and Administration. From January 2011 to September 2013, Mr. Gharib was the Corporate Controller, Director of Finance for Talon Therapeutics, Inc. Mr. Gharib has been a director of Cancer Carepoint since November 2017, and an advisor to Berkeley SkyDeck since January 2020. Mr. Gharib received a Bachelor of Science and M.B.A. from the Haas School of Business at the University of California at Berkeley, and is an active Certified Public Accountant licensed in the State of California.

Non-Employee Directors

Tiba Aynechi, Ph.D. has served as a member of our board of directors since May 2016. Dr. Aynechi is employed as a senior partner at Novo Ventures (US) Inc., or Novo Ventures, which provides certain consultancy services to Novo Holdings A/S, or Novo, a Danish limited liability company that manages investments and financial assets. Prior to joining Novo Ventures in March 2010, Dr. Aynechi was employed from June 2006 to March 2010 by Burrill & Company, a financial firm specializing in biotechnology and life sciences investment, in various positions, including from January 2009 to March 2010 as a director in merchant banking where she was responsible for regional and cross-border mergers and acquisitions, licensing, and financing transactions. Dr. Aynechi has served as a director of Mirum since November 2018 and Nkarta, Inc., a public biopharmaceutical company, since October 2015. Dr. Aynechi served as a director at iRhythm Technologies, Inc., a public digital healthcare company, from May 2014 to April 2017. She served as director of AnaptysBio, Inc., a biotechnology company, from April 2015 until its initial public offering in January 2017. She has also served as a member of the board of directors of several private biotechnology and medical device companies. Dr. Aynechi received her Ph.D. in biophysics from the University of California,

San Francisco, where her research involved developing computational methods for drug discovery. She received her B.S. in physics from the University of California, Irvine.

We believe that Dr. Aynechi's extensive experience in the biotechnology and pharmaceutical industries, including her expertise in handling a wide range of financing transactions, qualifies her to serve on our board of directors.

Dina Chaya, Ph.D., C.F.A. has served as a member of our board of directors since February 2020. Dr. Chaya is currently a partner at NeoMed Management (Jersey) Limited, an international venture capital investment firm focused on the healthcare industry, a position she has held since January 2014. Dr. Chaya has been an advisor to Omega Fund Management, LLC since November 2016. Dr. Chaya has served as a director of Imago BioSciences, Inc. since March 2019, Oxular Limited since February 2016, and TopiVert Limited and TopiVert Pharma Limited since December 2013. Dr. Chaya has been a member of the Venture Capital Platform Council of Invest Europe since March 2018. Dr. Chaya served on the board of Wilson Therapeutics AB, or Wilson Therapeutics, from October 2015 to April 2018. In addition, Dr. Chaya previously served on the boards of Attenua, Inc. and Endosense SA. She is a C.F.A. charterholder, holds a Ph.D. degree in Molecular and Cellular Biology from Paris VI University, and carried out postdoctoral research at Brown University, Providence and at the Fox Chase Cancer Centre, Philadelphia.

We believe that Dr. Chaya's business and venture capital experience as well as her extensive experience in the healthcare industry qualifies her serve on our board of directors.

Jonas Hansson, M.Sc. has served as a member of our board since February 2020. Mr. Hansson has been a partner with HealthCap Advisor AB, or HealthCap, a venture capital firm focused on life sciences, since January 2019. He was a Venture Partner at HealthCap from June 2012 to January 2019, and a Medical Associate at HealthCap from January 2008 to June 2012. Mr. Hansson was the co-founder and CEO of HealthCap start-up Wilson Therapeutics from June 2012 until it was acquired by Alexion Pharmaceuticals, Inc. in June 2018. Mr. Hansson held various sales and marketing positions within Janssen Pharmaceutica (acquired by Johnson & Johnson) from August 2000 to 2008. Mr. Hansson is a member of the board of directors of Prothelia Incorporated. Mr. Hansson received his M.Sc. in pharmacy from Uppsala University, and his master thesis was presented at The Scripps Research Institute in La Jolla, California. Mr. Hansson also holds an M.B.A. from Stockholm School of Economics.

We believe Mr. Hansson's experience as a venture capitalist, as an executive and in business development for companies within the healthcare and biopharmaceutical industries qualifies him to serve on our board of directors.

Bali Muralidhar, M.D, Ph.D. has served as a member of our board of directors since February 2020. Dr. Muralidhar has served as a partner at Abingworth LLP, or Abingworth, an international investment group dedicated to life sciences, since March 2019. Prior to joining Abingworth, Dr. Muralidhar was a senior partner at MVM Partners LLP, or MVM, from November 2012 to March 2019. Prior to MVM, he was a member of Bain Capital LP's leverage buyout team, focusing on healthcare from April 2011 to November 2012. Dr. Muralidhar has served as a director of Exicure, Inc. since August 2019. Dr. Muralidhar serves on the supervisory board of Valneva SE, or Valneva, a French biotechnology company traded on the Vienna Stock Exchange. Dr. Muralidhar previously served on the board of directors of Wilson Therapeutics from March 2014 to April 2018, and Valneva from May 2017 to December 2019. Dr. Muralidhar earned a degree in clinical medicine from the University of Oxford and has a Ph.D. in translational cancer research from the MRC Cancer Cell Unit, University of Cambridge.

We believe Dr. Muralidhar's investment experience in the healthcare industry qualifies him to serve on our board of directors.

Niall O'Donnell, Ph.D. has served as a member of our board of directors since May 2016. Dr. O'Donnell is currently a managing director at RiverVest Venture Partners, a venture capital firm, a position he has held since April 2014. He joined RiverVest Venture Partners in 2006 where he has focused on biopharmaceutical, diagnostic and medical device opportunities and contributes to the formation, development, and business strategies of RiverVest affiliated portfolio companies. Dr. O'Donnell currently serves as President and Chief and Executive Officer of Reneo, which he co-founded in December 2017. From 2011 to 2013, he served as acting chief interim medical officer at Lumena, where he led the development and execution of the company's clinical strategy leading up to its acquisition by Shire. From February 2019 to April 2020, he co-founded and served as a member of the board of directors of Curzion. Dr. O'Donnell has been a board member of Mirum since December 2018, and is also a board member of the biopharmaceutical companies Amplyx, and Avalyn Pharma, Inc. Dr. O'Donnell received a Ph.D. in biochemistry from the University of Dundee, Scotland, an M.A. in biochemistry from Pembroke College, Oxford, and an M.B.A. from the Rady School of Management of the University of California, San Diego.

We believe Dr. O'Donnell's substantial experience in developing and managing biopharmaceutical companies qualifies him to serve on our board of directors.

Camilla V. Simpson, M.Sc. has served as a member of our board of directors since October 2017. Since April 2019, Ms. Simpson has been the Managing Member and President of Rare Strategic, LLC where she provides strategic advice to private rare disease and gene therapy companies. Ms. Simpson has also been a member of the scientific advisory board of Aristea Therapeutics since November 2019. From April 2017 to April 2019, Ms. Simpson was SVP, Head of Product Portfolio Development at BioMarin where she was responsible for corporate and R&D governance, program leadership, project management, competitive intelligence, portfolio strategy, and business analytics. From October 2014 to April 2017, Ms. Simpson was Group Vice President Global Regulatory Affairs at BioMarin, and from March 2014 to October 2014, Ms. Simpson was Vice President Regulatory Affairs EU at BioMarin. She also spent 12 years at Shire, where after multiple roles of increasing responsibility, she held the position of Vice President Regulatory Affairs Early Development and Business Development. Ms. Simpson holds a B.Sc. from University College Galway, Ireland, a B.Sc. Hons. from Kingston University, UK, and an M.Sc. with distinction from the University of London, UK.

We believe Ms. Simpson's significant experience as a senior executive in the pharmaceutical and biotechnology industries, including her experience in a wide range of drug development, organizational strategy and global regulatory affairs matters, qualifies her to serve on our board of directors.

Composition of Our Board of Directors

Our business and affairs are organized under the direction of our board of directors, which currently consists of eight members. The primary responsibilities of our board of directors are to provide oversight, strategic guidance, counseling and direction to our management. Our board of directors meets on a regular basis and additionally as required.

Certain members of our board of directors were elected under the provisions of our Voting Agreement, which is defined below. Under the terms of our Voting Agreement, the stockholders who are party to the Voting Agreement have agreed to vote their respective shares to elect: (i) one director designated by Novo Holdings A/S, currently Dr. Aynechi, (ii) one director designated by RiverVest Venture Fund III, L.P., currently Dr. O'Donnell, (iii) one director designated by Omega Fund VI, L.P., currently Dr. Chaya, (iv) one director designated by Abingworth Bioventures VII LP, currently Dr. Muralidhar, (v) one director designated by HealthCap VIII L.P., currently Mr. Hansson, (vi) one

director designated by the holders of our common stock and who shall be our then-current Chief Executive Officer, currently Mr. King, and (vii) two directors designated by at least a majority of the members of our board of directors, currently Mr. Grey and Ms. Simpson. The Voting Agreement will terminate upon the closing of this offering, and thereafter no stockholder will have any special rights regarding the election or designation of the members of our board of directors. Our current directors elected to our board of directors pursuant to the Voting Agreement will continue to serve as directors until their successors are duly elected and qualified by holders of our common stock.

Our board of directors may establish the authorized number of directors from time to time by resolution. In accordance with our amended and restated certificate of incorporation to be filed in connection with this offering, immediately after this offering, our board of directors will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. Our directors will be divided among the three classes as follows:

- the Class I directors will be , and , and their terms will expire at the annual meeting of stockholders to be held in 2021;
- the Class II directors will be , and , and their terms will expire at the annual meeting of stockholders to be held in 2022; and
- the Class III directors will be and , and their terms will expire at the annual meeting of stockholders to be held in 2023.

We expect that any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one third of the directors. The division of our board of directors into three classes with staggered three-year terms may delay or prevent a change of our management or a change in control.

Director Independence

Under the listing requirements and rules of Nasdaq, independent directors must comprise a majority of our board of directors as a listed company within one year of the listing date.

Our board of directors has undertaken a review of the independence of each director. Based on information provided by each director concerning her or his background, employment, and affiliations, our board of directors has determined that do not have relationships that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is “independent” as that term is defined under the listing standards. In making these determinations, our board of directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances our board of directors deemed relevant in determining their independence, including the beneficial ownership of our shares by each non-employee director and the transactions described in “Certain Relationships and Related Person Transactions.”

Committees of Our Board of Directors

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee. The composition and responsibilities of each of the committees of our board of directors are described below. Members serve on these committees until their resignation or until otherwise determined by our board of directors. Our board of directors may establish other committees as it deems necessary or appropriate from time to time.

Audit Committee

Our audit committee currently consists of , , and , each of whom our board of directors has determined satisfies the independence requirements under listing standards and Rule 10A-3(b)(1) of the Exchange Act. The chair of our audit committee is , who our board of directors has determined is an "audit committee financial expert" within the meaning of SEC regulations. Each member of our audit committee can read and understand fundamental financial statements in accordance with applicable requirements. In arriving at these determinations, the board of directors has examined each audit committee member's scope of experience and the nature of their employment in the corporate finance sector.

The primary purpose of the audit committee is to discharge the responsibilities of our board of directors with respect to our corporate accounting and financial reporting processes, systems of internal control and financial-statement audits, and to oversee our independent registered accounting firm. Specific responsibilities of our audit committee include:

- helping our board of directors oversee our corporate accounting and financial reporting processes;
- managing the selection, engagement, qualifications, independence, and performance of a qualified firm to serve as the independent registered public accounting firm to audit our financial statements;
- discussing the scope and results of the audit with the independent registered public accounting firm, and reviewing, with management and the independent accountants, our interim and year-end operating results;
- developing procedures for employees to submit concerns anonymously about questionable accounting or audit matters;
- reviewing related person transactions;
- obtaining and reviewing a report by the independent registered public accounting firm at least annually, that describes our internal quality control procedures, any material issues with such procedures, and any steps taken to deal with such issues when required by applicable law; and
- approving, or, as permitted, pre-approving, audit and permissible non-audit services to be performed by the independent registered public accounting firm.

Compensation Committee

Our compensation committee currently consists of , , and . The chair of our compensation committee is . Our board of directors has determined that each of is independent under Nasdaq listing standards and a "non-employee director" as defined in Rule 16b-3 promulgated under the Exchange Act.

The primary purpose of our compensation committee is to discharge the responsibilities of our board of directors in overseeing our compensation policies, plans, and programs and to review and determine the compensation to be paid to our executive officers, directors, and other senior management, as appropriate. Specific responsibilities of our compensation committee include:

- reviewing and approving the compensation of our chief executive officer, other executive officers and senior management;
- reviewing and recommending to our board of directors the compensation paid to our directors;
- reviewing and approving the compensation arrangements with our executive officers and other senior management;
- administering our equity incentive plans and other benefit programs;

- reviewing, adopting, amending, and terminating, incentive compensation and equity plans, severance agreements, profit sharing plans, bonus plans, change-of-control protections, and any other compensatory arrangements for our executive officers and other senior management;
- reviewing, evaluating and recommending to our board of directors succession plans for our executive officers; and
- reviewing and establishing general policies relating to compensation and benefits of our employees, including our overall compensation philosophy.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee consists of , , and . The chair of our nominating and corporate governance committee is . Our board of directors has determined that each member of the nominating and corporate governance committee is independent under Nasdaq listing standards.

Specific responsibilities of our nominating and corporate governance committee include:

- identifying and evaluating candidates, including the nomination of incumbent directors for reelection and nominees recommended by stockholders, to serve on our board of directors;
- considering and making recommendations to our board of directors regarding the composition and chairmanship of the committees of our board of directors;
- instituting plans or programs for the continuing education of our board of directors and orientation of new directors;
- developing and making recommendations to our board of directors regarding corporate governance guidelines and matters; and
- overseeing periodic evaluations of the board of directors' performance, including committees of the board of directors and management.

Code of Conduct

We have adopted a Code of Conduct that applies to all our employees, officers, and directors. This includes our principal executive officer, principal financial officer and principal accounting officer or controller, or persons performing similar functions. The full text of our Code of Conduct will be posted on our website at www.sprucebiosciences.com. We intend to disclose on our website any future amendments of our Code of Conduct or waivers that exempt any principal executive officer, principal financial officer, principal accounting officer or controller, persons performing similar functions or our directors from provisions in the Code of Conduct. Information contained on, or that can be accessed through, our website is not incorporated by reference into this prospectus, and you should not consider information on our website to be part of this prospectus.

Compensation Committee Interlocks and Insider Participation

None of the members of the compensation committee is currently, or has been at any time, one of our officers or employees. None of our executive officers currently serves, or has served during the last calendar year, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as a member of our board of directors or compensation committee.

Non-Employee Director Compensation

The following table sets forth in summary form information concerning the compensation that we paid or awarded during the year ended December 31, 2019 to each of our non-employee directors who served on our board of directors during 2019:

Name[1]	Fees Earned or Paid in Cash ($)	Option Awards ($)[2][3]	Total ($)
Tiba Aynechi, Ph.D.	–	–	–
Niall O'Donnell, Ph.D.	–	–	–
Camilla V. Simpson, M.Sc.	–	12,981	12,981

(1) Mr. Grey, our Executive Chairman, was also a director as of December 31, 2019, but did not receive any additional compensation for his service as a director. Dr. Howerton served as our Chief Executive Officer and as a member of our board of directors until May 2019. After leaving our board of directors in May 2019, Dr. Howerton was subsequently re-elected as a non-employee director in June 2019 and resigned from our board of directors in February 2020. Mr. King, our Chief Executive Officer, was also a director as of December 31, 2019, but did not receive any additional compensation for his service as a director. See the section titled "Executive Compensation" for more information regarding the compensation earned by Mr. Grey, Dr. Howerton and Mr. King in 2019, including consideration Dr. Howerton received in connection with her separation agreement.

(2) The amounts disclosed represent the aggregate grant date fair value of the stock options granted to our non-employee directors during fiscal year 2019 under our amended and restated 2016 Equity Incentive Plan, or our 2016 Plan, computed in accordance with Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 718. The assumptions used in calculating the grant date fair value of the stock options are set forth in Note 6 to our annual financial statements and Note 6 to our interim condensed financial statements, each included elsewhere in this prospectus. This amount does not reflect the actual economic value that may be realized by the non-employee director.

(3) As of December 31, 2019, the aggregate number of shares underlying outstanding options to purchase our common stock held by our non-employee directors was: Ms. Simpson, 190,000 shares; Dr. Aynechi and Dr. O'Donnell did not hold any options to purchase shares of our common stock. As of December 31, 2019, none of our non-employee directors held other unvested stock awards.

We have reimbursed and will continue to reimburse all of our non-employee directors for their reasonable out-of-pocket expenses incurred in attending board of directors and committee meetings.

We entered into a letter agreement with Ms. Simpson in October 2017 confirming her appointment as a member of our board of directors. Pursuant to her agreement, Ms. Simpson was entitled to a stock option award, which was granted in October 2017 and vests as follows: 25% of the shares vested on October 19, 2018, and the balance vest in equal monthly installments over the next three years thereafter, in each case subject to Ms. Simpson's continued service to us. The vesting of this option will accelerate in full immediately prior to a merger or change in control (as defined in the 2016 Plan) that occurs during Ms. Simpson's continued service to us.

In July 2019, we granted a stock option to Ms. Simpson covering 85,000 shares of our common stock at an exercise price of $0.22 per share, that vests as follows: 25% of the shares vested on March 1, 2020, and the balance vest in equal monthly installments over the next three years thereafter, in each case subject to Ms. Simpson's continued service to us.

In June 2020, we granted Ms. Simpson a stock option to purchase 152,000 shares of our common stock at an exercise price of $0.25 per share, which vests monthly over four years following the grant date, subject to Ms. Simpson's continued service to us. Ms. Simpson's June 2020 option includes an early exercise feature.

In August 2020, we granted Ms. Simpson a stock option to purchase 178,000 shares of our common stock at an exercise price of $0.47 per share, which vests monthly over four years following the grant date, subject to Ms. Simpson's continued service to us. Ms. Simpson's August 2020 option includes an early exercise feature.

Our board of directors adopted a non-employee director compensation policy in , 2020 that will become effective upon the execution and delivery of the underwriting agreement related to this offering and will be applicable to all of our non-employee directors. This compensation policy provides that each such non-employee director will receive the following compensation for service on our board of directors:

- an annual cash retainer of $;
- an additional annual cash retainer of $, $ and $ for service as a member of the audit committee, compensation committee and the nominating and corporate governance committee, respectively;
- an additional annual cash retainer of $, $ and $ for service as chair of the audit committee, compensation committee and the nominating and corporate governance committee, respectively;
- an initial option grant to purchase shares of our common stock on the date of each such non-employee director's appointment to our board of directors; and
- an annual option grant to purchase shares of our common stock on the date of each of our annual stockholder meetings.

Each of the option grants described above will be granted under our 2020 Equity Incentive Plan, or our 2020 Plan, the terms of which are described in more detail below under the section titled "Executive Compensation—Employee Benefit Plans—2020 Equity Incentive Plan." Each such option grant will vest and become exercisable subject to the director's continuous service to us through the earlier of the first anniversary of the date of grant or the next annual stockholder meeting. The term of each option will be ten years, subject to earlier termination as provided in the 2020 Plan.

EXECUTIVE COMPENSATION

Our named executive officers for the year ended December 31, 2019, consisting of our current and former principal executive officers and the next two most highly compensated executive officers who were serving in such capacity as of December 31, 2019, were:

- Richard King, our Chief Executive Officer;
- Alexis Howerton, Ph.D., our former Chief Executive Officer;
- Michael Grey, our Executive Chairman; and
- Michael Huang, M.D., our former Chief Medical Officer.

In May 2020, we hired Samir Gharib as our Chief Financial Officer. Although Mr. Gharib commenced employment with us in 2020, we have included information in the following narrative regarding his compensation where it may be material to an understanding of our executive compensation program.

Summary Compensation Table

The following table presents all of the compensation awarded to or earned by or paid to our named executive officers during the fiscal year ended December 31, 2019.

Name and Principal Position	Fiscal Year	Salary ($)	Option Awards ($)(1)	Non-Equity Incentive Plan Compensation ($)(2)	All Other Compensation ($)(3)	Total ($)
Richard King *Chief Executive Officer(4)*	2019	270,483(5)	229,283	50,000	–	549,766
Alexis Howerton, Ph.D. *Former Chief Executive Officer(6)*	2019	134,828	41,346	–	154,500	330,674
Michael Grey *Executive Chairman*	2019	–	29,016	–	–	29,016
Michael Huang, M.D. *Former Chief Medical Officer(7)*	2019	343,375	14,972	120,768	–	479,115

(1) The amounts disclosed represent the aggregate grant date fair value of the stock options granted to our named executive officers during fiscal year 2019 under our 2016 Plan, computed in accordance with FASB ASC Topic 718. The assumptions used in calculating the grant date fair value of the stock options are set forth in Note 6 to our annual financial statements and Note 6 to our interim condensed financial statements, each included elsewhere in this prospectus. This amount does not reflect the actual economic value that may be realized by the named executive officer. Also reflects incremental fair value (in the amount of $41,346) associated with the partial acceleration of Dr. Howerton's outstanding stock options and extension of the post-termination exercise period of Dr. Howerton's outstanding stock options pursuant to her May 2019 separation agreement with us, determined in accordance with FASB ASC Topic 718. Dr. Huang's option award disclosed above (in the amount of $14,972) was cancelled in connection with his termination in February 2020.

(2) The amounts disclosed represent performance bonuses earned in 2019 and paid in early 2020. Mr. King's bonus was pro-rated to reflect his partial year of service.

(3) The amount disclosed represents severance payable to Dr. Howerton.

(4) Mr. King has served as our Chief Executive Officer since October 2019, and served as our interim Chief Executive Officer from May 2019 to October 2019.

(5) The amount disclosed represents (i) $170,227 in consulting fees payable to Mr. King for his service as interim Chief Executive Officer pursuant to his consulting agreement with us and (ii) $100,256 in base salary payments to Mr. King following his commencement of employment as Chief Executive Officer.

(6) Dr. Howerton served as our Chief Executive Officer until May 2019.
(7) Dr. Huang served as our Chief Medical Officer until February 2020.

Annual Base Salary

The 2019 annual base salaries for our named executive officers (other than Mr. Grey, who does not receive a base salary) are set forth in the table below.

Name	2019 Base Salary
Richard King	$ 400,000
Alexis Howerton, Ph.D.(1)	$ 309,000
Michael Huang, M.D.(2)	$ 345,000

(1) Dr. Howerton's base salary increased from $300,000 to $309,000 in February 2019.
(2) Dr. Huang's base salary increased from $335,000 to $345,000 in March 2019.

Non-Equity Incentive Plan Compensation

We seek to motivate and reward our executives for achievements relative to our corporate goals and expectations for each fiscal year. Each of our named executive officers (other than Mr. Grey) is eligible to receive an annual performance bonus based on the achievement of performance goals as determined by our board of directors or an authorized committee thereof. For 2019, these goals included financing and clinical objectives. Each executive officer is assigned a target bonus expressed as a percentage of his or her base salary. The target bonus amounts for Mr. King, Dr. Howerton and Dr. Huang for 2019 were set at 50%, 40%, and 35% (as of July 2019), respectively. In December 2019, our board of directors determined that the 2019 corporate goals were achieved at 100% and, as a result, approved annual performance bonuses for Mr. King and Dr. Huang in the amounts of $50,000 (determined based on his pro-rated base salary for 2019) and $120,768, respectively, as reflected in the "Non-Equity Incentive Plan Compensation" column of the Summary Compensation Table above. Dr. Howerton ceased employment with us prior to payout of 2019 bonuses and thus was not entitled to a bonus.

Equity-Based Incentive Awards

Prior to this offering, we granted stock options to each of our named executive officers pursuant to our 2016 Plan, the terms of which are described below under "—Employee Benefit and Stock Plans—Amended and Restated 2016 Equity Incentive Plan."

In July 2019, we granted an option to each of Mr. King, Mr. Grey, and Dr. Huang to purchase 380,000 shares, 190,000 shares, and 100,000 shares, respectively, of our common stock at an exercise price of $0.22 per share. Mr. King's option was granted pursuant to his consulting agreement with us and vests as follows: one-half of the shares vested on the grant date, and one-twelfth of the shares vest monthly commencing on December 6, 2019, subject to Mr. King's continued service to us. Mr. Grey's option vests as follows: 25% of the shares vested on March 1, 2020, and the balance vests in equal monthly installments over the three years thereafter, subject to Mr. Grey's continued service to us. Dr. Huang's option was forfeited in connection with Dr. Huang's termination of services in February 2020.

In October 2019, in connection with Mr. King's commencement of employment with us, we granted Mr. King an option to purchase 1,148,406 shares of our common stock at an exercise price of $0.22 per share that vests as follows: one-forty-eighth of the shares shall vest on each monthly anniversary of October 1, 2019, subject to Mr. King's continued service to us. The option includes an early exercise feature.

In June 2020, we granted Mr. King options to purchase an aggregate of 1,414,000 shares of our common stock at an exercise price of $0.25 per share, 265,000 shares of which vest in equal monthly installments over four years following the closing of a specified initial public offering or of a specified deemed liquidation event, as defined in our amended and restated certificate of incorporation, and 1,149,000 shares of which vest in equal monthly installments over four years, in each case subject to Mr. King's continued service to us. In June 2020, we also granted Mr. Grey options to purchase an aggregate of 616,000 shares of our common stock at an exercise price of $0.25 per share, 85,000 shares of which vest in equal monthly installments over four years following the closing of a specified initial public offering or of a specified deemed liquidation event, as defined in our amended and restated certificate of incorporation, and 531,000 shares of which vest in equal monthly installments over four years, in each case subject to Mr. Grey's continued service to us. In addition, in June 2020, in connection with Mr. Gharib's commencement of employment with us, we granted Mr. Gharib an option to purchase 775,000 shares of our common stock at an exercise price of $0.25 per share that vests as follows: one-fourth of the shares shall vest on May 1, 2021, and the balance vests in equal monthly installments over the three years thereafter, subject to Mr. Gharib's continued service to us. Mr. King's, Mr. Grey's, and Mr. Gharib's June 2020 options each include an early exercise feature.

In August 2020, we granted Mr. King options to purchase an aggregate of 2,029,000 shares of our common stock at an exercise price of $0.47 per share, 379,000 shares of which vest in equal monthly installments over four years following the closing of a specified initial public offering or of a specified deemed liquidation event, as defined in our amended and restated certificate of incorporation, and 1,650,000 shares of which vest in equal monthly installments over four years following the grant date, in each case subject to Mr. King's continued service to us. In August 2020, we also granted Mr. Grey options to purchase an aggregate of 736,000 shares of our common stock at an exercise price of $0.47 per share, 102,000 shares of which vest in equal monthly installments over four years following the closing of a specified initial public offering or of a specified deemed liquidation event, as defined in our amended and restated certificate of incorporation, and 634,000 shares of which vest in equal monthly installments over four years following the grant date, in each case subject to Mr. Grey's continued service to us. In addition, in August 2020, we granted Mr. Gharib an option to purchase 468,000 shares of our common stock at an exercise price of $0.47 per share that vests in equal monthly installments over four years following the grant date, subject to Mr. Gharib's continued service to us. Mr. King's, Mr. Grey's, and Mr. Gharib's August 2020 options each include an early exercise feature.

Following the completion of this offering, we may grant additional equity awards to our executive officers pursuant to our 2020 Plan, the terms of which are described below under "—Employee Benefit and Stock Plans—2020 Equity Incentive Plan."

Outstanding Equity Awards as of December 31, 2019

The following table presents the outstanding equity incentive plan awards held by each named executive officer as of December 31, 2019.

		Option Awards[1]			
Name	Grant Date	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price Per Share ($)[2]	Option Expiration Date
Richard King	07/23/2019[3]	221,667	158,333	$ 0.22	07/22/2029
	10/14/2019[4]	1,148,406	–	$ 0.22	10/13/2029
Alexis Howerton, Ph.D.	06/02/2016[5]	525,000	–	$ 0.13	05/06/2022
	06/13/2017[6]	375,000	–	$ 0.13	05/06/2022
Michael Grey	06/13/2017[7]	290,625	159,375	$ 0.13	06/13/2027
	07/23/2019[8]	–	190,000	$ 0.22	07/22/2029
Michael Huang, M.D.	07/27/2017[9]	281,250	168,750	$ 0.13	12/31/2020
	07/23/2019[10]	0	100,000	$ 0.22	12/31/2020

(1) All of the option awards were granted under the 2016 Plan, the terms of which plan is described below under "—Employee Benefit and Stock Plans—Amended and Restated 2016 Equity Incentive Plan."

(2) All of the option awards were granted with a per share exercise price equal to the fair market value of one share of our common stock on the date of grant, as determined in good faith by our board of directors or compensation committee.

(3) One-half of the shares subject to the option award vested upon granting of the option, and one-twelfth of the shares vest monthly commencing on December 6, 2019, subject to continued service to us. The option is also eligible for accelerated vesting in the event of a successful agreement with the FDA regarding the remainder of Phase 2 and a Phase 3 program leading to an acceptable label, as determined by our board of directors and subject to his continued service to us through such date.

(4) One-forty-eighth of the shares subject to the option award shall vest on each monthly anniversary of October 1, 2019, subject to continued service to us. The option includes an early exercise feature.

(5) One-forty-eighth of the shares subject to the option award vested on each monthly anniversary of May 2, 2016, subject to continuous service with us. The vesting of 75,000 shares subject to this option award was accelerated pursuant to the separation agreement we entered into with Dr. Howerton on May 24, 2019.

(6) One-fourth of the shares subject to the option award vested on May 1, 2018, and thereafter one-forty-eighth of the shares subject to the option award vested on each monthly anniversary, subject to continuous service with us. The vesting of 75,000 shares subject to this option award was accelerated pursuant to the separation agreement we entered into with Dr. Howerton on May 24, 2019.

(7) One-fourth of the shares subject to the option award vested on May 1, 2018, and thereafter one-forty-eighth of the shares subject to the option award vested on each monthly anniversary, subject to continuous service with us. The vesting of this option will accelerate in full immediately prior to a merger or change in control (as defined in the 2016 Plan) that occurs during Mr. Grey's continued service to us.

(8) One-fourth of the shares subject to the option award vested on March 1, 2020, and thereafter one-forty-eighth of the shares subject to the option award vested on each monthly anniversary, subject to continuous service with us.

(9) One-fourth of the shares subject to the option award vested on June 5, 2018, and thereafter one-forty-eighth of the shares subject to the option award vested on each monthly anniversary, subject to continued service to us.

(10) One-half of the shares subject to the option award vest on July 23, 2020, and one-half of the shares subject to the option award vest on July 23, 2021, subject to continued service to us.

Pursuant to the separation agreement we entered into with Dr. Howerton on May 24, 2019, the vesting of Dr. Howerton's outstanding stock options was accelerated as if Dr. Howerton remained employed by us for an additional six months and the post-termination exercise period for Dr. Howerton's outstanding stock options was extended until May 6, 2022. We did not make any other material modifications to stock options held by our named executive officers in 2019.

In February 2020, in connection with Dr. Huang's separation agreement with us, we extended the post-termination exercise period for Dr. Huang's vested and outstanding stock options until December 31, 2020.

Options held by certain of our named executive officers and Mr. Gharib are eligible for accelerated vesting under specified circumstances in accordance with our severance and change in control policy. Please see "—Potential Payments Upon Termination or Change of Control" below for a description of such potential acceleration.

Emerging Growth Company Status

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As an emerging growth company we will be exempt from certain requirements related to executive compensation, including the requirements to hold a nonbinding advisory vote on executive compensation and to provide information relating to the ratio of total compensation of our Chief Executive Officer to the median of the annual total compensation of all of our employees, each as required by the Investor Protection and Securities Reform Act of 2010, which is part of the Dodd-Frank Act.

Employment, Letter, Severance, and Change in Control Agreements

Employment, Letter, and Separation Agreements

Below are descriptions of our employment and letter agreements with our named executive officers and Mr. Gharib. For a discussion of the severance pay and other benefits to be provided in connection with a termination of employment and/or a change in control under the arrangements with our named executive officers and Mr. Gharib, please see "—Potential Payments Upon Termination or Change of Control" below.

Mr. King. From May 2019 until October 2019, Mr. King provided consulting services to us pursuant to a consulting agreement under which Mr. King was entitled to a monthly cash fee of $35,000 and a stock option award covering 380,000 shares of our common stock that was granted in July 2019. In October 2019, we entered into an employment agreement with Mr. King, which superseded his consulting agreement with us and which governs the current terms of Mr. King's employment with us. Pursuant to the employment agreement, Mr. King is entitled to an initial annual base salary of $400,000, is eligible to receive an annual performance bonus with a target achievement of 50% of his base salary, as determined by our board of directors, and was granted options to purchase an aggregate of 1,148,406 shares of our common stock. Mr. King received a special bonus in the amount of $200,000 in connection with the closing of our Series B redeemable convertible preferred stock financing, which occurred in February 2020. Mr. King is also entitled to certain severance benefits, the terms of which are described below under "—Potential Payments Upon Termination or Change of Control." Mr. King is also eligible for standard benefits such as vacation and paid time off, for reimbursement of business expenses, and to participate in employee benefit plans and programs. Mr. King's employment is at will.

Dr. Howerton. We entered into an employment agreement with Dr. Howerton in May 2016, which governed the initial terms of Dr. Howerton's employment with us. Pursuant to the agreement, Dr. Howerton was entitled to an initial annual base salary of $275,000 (most recently increased to $309,000), and an annual performance bonus with a target achievement of 25% (most recently increased to 40%) of her base salary. In addition, certain restrictions were placed on the shares of our common stock that Dr. Howerton held at that time, and she was granted an option to purchase 600,000 shares of our common stock in June 2016 in connection with the agreement. Dr. Howerton was eligible for standard benefits like vacation and paid time off, for reimbursement of business expenses, and to participate in employee benefit plans and programs. Dr. Howerton's employment was at will.

Dr. Howerton terminated her employment with us in May 2019, and at that time, we entered into a separation agreement with Dr. Howerton, pursuant to which we agreed to make a lump sum cash severance payment equal to six months of Dr. Howerton's then-current base salary, to accelerate the vesting of all of Dr. Howerton's outstanding option grants as if she had remained employed for an additional six months, and to extend the post-termination exercise period for Dr. Howerton's options until May 6, 2022, in exchange for a release of claims in favor of our company and subject to her compliance with her obligations under the agreement, including those relating to confidentiality, non-disparagement, and return of company property. Dr. Howerton's separation was effective on May 6, 2019.

Mr. Grey. We entered into a letter agreement with Mr. Grey in March 2017 confirming his responsibilities as Executive Chairman of our board of directors. Pursuant to the agreement, Mr. Grey was granted an option to purchase 450,000 shares of our common stock.

Dr. Huang. We entered into an employment agreement with Dr. Huang in May 2017, which governed the initial terms of Dr. Huang's employment with us. Pursuant to the agreement, Dr. Huang was entitled to an initial annual base salary of $335,000 (most recently increased to $345,000), an annual performance bonus with a target achievement of 25% of his base salary (most recently increased to 35%), and was granted an option to purchase 450,000 shares of our common stock in July 2017 in connection with the agreement. Dr. Huang was also eligible for standard benefits like vacation and paid time off, for reimbursement of business expenses, and to participate in employee benefit plans and programs. Dr. Huang's employment was at will. In February 2020, Dr. Huang terminated his employment with us, and at that time, we entered into a separation agreement with Dr. Huang, pursuant to which we agreed to make a severance payment equal to six months of Dr. Huang's then-current base salary, plus the amount of his 2019 performance-based bonus, and extended the post-termination exercise period for Dr. Huang's options until December 31, 2020, in exchange for a release of claims in favor of our company and subject to his compliance with his obligations under the agreement, including those relating to confidentiality, non-disparagement, and return of company property. Dr. Huang's separation was effective on February 26, 2020.

Mr. Gharib. We entered into an offer letter agreement with Mr. Gharib in April 2020, which governs the current terms of Mr. Gharib's employment with us. Pursuant to the agreement, Mr. Gharib is entitled to an initial annual base salary of $330,000, is eligible to receive an annual performance bonus with a target achievement of 30% of his base salary, as determined by our board of directors, and was granted an option to purchase 775,000 shares of our common stock. Mr. Gharib is also eligible for standard benefits like vacation and paid time off and to participate in employee benefit plans and programs. Mr. Gharib's employment is at will.

Potential Payments Upon Termination or Change of Control

In July 2019, we adopted a severance and change in control policy that applies to all employees designated thereunder, including Mr. King, Dr. Huang (prior to his termination), and Mr. Gharib. Mr. Grey is not entitled to receive benefits under the policy. The policy provides that, in the event of a change in control termination, we will provide the following severance benefits, contingent upon receiving a release of claims in favor of our company, compliance with any existing confidentiality agreement, return of all company property, and agreement to resign from all officer and director positions (unless otherwise specified by the company): (i) a lump sum cash payment equal to six months of the employee's base salary, (ii) a lump sum cash payment equal to (a) the employee's target bonus multiplied by (b) a fraction, the numerator of which is the number of days between (and including) the start of the fiscal year in which the change in control termination occurs and the date of change in control termination and the denominator of which is 365, and (iii) up to six months of COBRA coverage. In addition, in the event of a change in control while the employee is still an employee of the company, 100% of the employee's unvested equity awards will vest in full and become immediately

exercisable, unless vesting is based on the achievement of performance criteria, in which case the equity award will vest as to 100% of the amount of the equity award assuming the performance criteria had been achieved at target levels for the relevant performance period(s).

For the purposes of the severance and change in control policy, the following definitions apply:

- "cause" generally means with respect to a particular employee, the meaning ascribed to such term in any written agreement between such employee and the company defining such term, and, in the absence of such agreement, the occurrence of any of the following events: (i) such employee's commission of any felony or any crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof; (ii) such employee's attempted commission of, or participation in, a fraud or act of dishonesty against the company; (iii) such employee's intentional, material violation of any contract or agreement between such employee and the company or of any statutory duty owed to the company; (iv) such employee's unauthorized use or disclosure of the company's confidential information or trade secrets; or (v) such employee's gross misconduct.
- "change in control" generally means a deemed liquidation event, as defined in our amended and restated certificate of incorporation, in which either (i) the amount per share to be paid or distributed to the holders of our Series A redeemable convertible preferred stock is equal to or greater than the original issue price of our Series A redeemable convertible preferred stock or (ii) such deemed liquidation event is declared to be a "change in control", for purposes of the policy, by the holders of a majority of the outstanding shares of our Series A redeemable convertible preferred stock.
- "change in control period" means the period beginning on the date that is three months prior to and ending on the date that is 12 months following the consummation of a change in control.
- "change in control termination" generally means an involuntary termination that occurs within the change in control period. For such purposes, if the events giving rise to an employee's right to resign for good reason arise within the change in control period, and the employee's resignation occurs not later than thirty days after the expiration of the cure period, such termination shall be a change in control termination.
- "good reason" for an employee's resignation generally means the occurrence of any of the following events, conditions, or actions taken by the company without cause and without such employee's consent: (i) a material reduction of such employee's annual base salary, which is a reduction of at least 10% (unless pursuant to a salary reduction program applicable generally to the company's similarly situated employees); (ii) a material reduction in such employee's authority, duties, or responsibilities; (iii) a relocation of such employee's principal place of employment with the company to a place that increases such employee's one-way commute by more than fifty miles (excluding regular travel in the ordinary course of business); provided that if such employee's principal place of employment is his or her personal residence, this clause (iii) shall not apply; provided, however, that in each case above, in order for the employee's resignation to be deemed to have been for good reason, the employee must first give the company written notice of the action or omission giving rise to "good reason" within thirty days after the first occurrence thereof; the company must fail to reasonably cure such action or omission within thirty days after receipt of such notice, or the cure period, and the employee's resignation must be effective not later than thirty days after the expiration of the cure period.
- "involuntary termination" generally means a termination of an employee's employment by us without cause (excluding by reason of the employee's death or disability) or such employee's voluntary resignation for good reason.

Pursuant to Mr. King's employment agreement, if he experiences an involuntary termination that is not a change in control termination, as such terms are used in the severance and change in control

policy, he shall receive the following severance benefits, subject to signing a separation agreement and release of claims in favor of the company: (i) a severance payment equal to nine months of his then-current base salary paid in installments, (ii) up to nine months of COBRA coverage, and (iii) a lump sum cash payment equal to his annual bonus for the year in which the termination occurs, pro-rated up to the date of separation. In the event that Mr. King experiences an involuntary termination that is a change of control termination, he would receive the severance benefits pursuant to the severance and change in control policy, except that he would receive a severance payment equal to 12 months of his then-current base salary, instead of six months, paid in installments and up to 12 months of COBRA coverage, instead of six months.

Other Compensation and Benefits

All of our current named executive officers (except for Mr. Grey) are eligible to participate in our employee benefit plans, including our medical, dental, vision, and life plans, in each case on the same basis as all of our other employees. We pay the premiums for the life, disability, accidental death, and dismemberment insurance for all of our employees, including our named executive officers. We generally do not provide perquisites or personal benefits to our named executive officers.

Employee Benefit Plans

We believe that our ability to grant equity-based awards is a valuable and necessary compensation tool that aligns the long-term financial interests of our employees, consultants and directors with the financial interests of our stockholders. In addition, we believe that our ability to grant options and other equity-based awards helps us to attract, retain and motivate employees, consultants, and directors, and encourages them to devote their best efforts to our business and financial success. The principal features of our equity incentive plans and our 401(k) plan are summarized below. These summaries are qualified in their entirety by reference to the actual text of the plans, which, other than the 401(k) plan, are filed as exhibits to the registration statement of which this prospectus is a part.

2020 Equity Incentive Plan

Our board of directors adopted our 2020 Plan on and our stockholders approved our 2020 Plan on . Our 2020 Plan provides for the grant of incentive stock options, or ISOs, to employees, including employees of any parent or subsidiary, and for the grant of nonstatutory stock options, or NSOs, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance awards and other forms of stock awards to employees, directors, and consultants, including employees and consultants of our affiliates. Our 2020 Plan is a successor to and continuation of our 2016 Plan, and will become effective on the execution of the underwriting agreement related to this offering.

Authorized Shares. Initially, the maximum number of shares of our common stock that may be issued under our 2020 Plan after it becomes effective will be shares, which is the sum of (1) new shares, plus (2) the number of shares that remain available for issuance under our 2016 Plan at the time our 2020 Plan becomes effective, plus (3) any shares subject to outstanding stock options or other stock awards that were granted under our 2016 Plan that are forfeited, terminate, expire, or are otherwise not issued. In addition, the number of shares of our common stock reserved for issuance under our 2020 Plan will automatically increase on January 1 of each calendar year, starting on January 1, 2021 (assuming the 2020 Plan becomes effective in 2020) through January 1, 2030, in an amount equal to % of the total number of shares of our capital stock outstanding on the last day of the calendar month before the date of each automatic increase, or a lesser number of shares determined by our board of directors. The maximum number of shares of our common stock that may be issued on the exercise of incentive stock options under our 2020 Plan is .

Shares subject to stock awards granted under our 2020 Plan that expire or terminate without being exercised in full, or that are paid out in cash rather than in shares, do not reduce the number of shares available for issuance under our 2020 Plan. Additionally, shares become available for future grant under our 2020 Plan if they were issued under stock awards under our 2020 Plan if we repurchase them or they are forfeited. This includes shares used to pay the exercise price of a stock award or to satisfy the tax withholding obligations related to a stock award.

Plan Administration. Our board of directors, or a duly authorized committee of our board of directors, will administer our 2020 Plan. Our board of directors may also delegate to one or more of our officers the authority to (1) designate employees (other than officers) to receive specified stock awards and (2) determine the number of shares subject to such stock awards. Under our 2020 Plan, our board of directors has the authority to determine and amend the terms of awards and underlying agreements, including:

- recipients;
- the exercise, purchase or strike price of stock awards, if any; the number of shares subject to each stock award;
- the vesting schedule applicable to the awards, together with any vesting acceleration; and
- the form of consideration, if any, payable on exercise or settlement of the award.

Under the 2020 Plan, the board of directors also generally has the authority to effect, with the consent of any adversely affected participant:

- the reduction of the exercise, purchase, or strike price of any outstanding award;
- the cancellation of any outstanding award and the grant in substitution therefore of other awards, cash, or other consideration; or
- any other action that is treated as a repricing under generally accepted accounting principles.

Stock Options. ISOs and NSOs are granted under stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for stock options, within the terms and conditions of the 2020 Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the 2020 Plan vest at the rate specified in the stock option agreement as determined by the plan administrator.

Tax Limitations on ISOs. The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an optionholder during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant, and (2) the option is not exercisable after the expiration of five years from the date of grant.

Restricted Stock Unit Awards. Restricted stock units are granted under restricted stock unit award agreements adopted by the plan administrator. Restricted stock units may be granted in consideration for any form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. A restricted stock unit may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the plan administrator, or in any other form of consideration set forth in the restricted stock unit agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit. Except as otherwise provided in the applicable award agreement, Restricted stock units that have not vested will be forfeited once the participant's continuous service ends for any reason.

Restricted Stock Awards. Restricted stock awards are granted under restricted stock award agreements adopted by the plan administrator. A restricted stock award may be awarded in consideration for cash, check, bank draft or money order, past services to us, or any other form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. The plan administrator determines the terms and conditions of restricted stock awards, including vesting and forfeiture terms. If a participant's service relationship with us ends for any reason, we may receive any or all of the shares of common stock held by the participant that have not vested as of the date the participant terminates service with us through a forfeiture condition or a repurchase right.

Stock Appreciation Rights. Stock appreciation rights are granted under stock appreciation grant agreements adopted by the plan administrator. The plan administrator determines the purchase price or strike price for a stock appreciation right, which generally cannot be less than 100% of the fair market value of our common stock on the date of grant. A stock appreciation right granted under the 2020 Plan vests at the rate specified in the stock appreciation right agreement as determined by the plan administrator.

Performance Awards. The 2020 Plan permits the grant of performance-based stock and cash awards. The plan administrator may structure awards so that the shares of our stock, cash, or other property will be issued or paid only following the achievement of certain pre-established performance goals during a designated performance period. The performance criteria that will be used to establish such performance goals may be based on any measure of performance selected by the plan administrator.

The performance goals may be based on a company-wide basis, with respect to one or more business units, divisions, affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise (i) in the award agreement at the time the award is granted or (ii) in such other document setting forth the performance goals at the time the goals are established, we will appropriately make adjustments in the method of calculating the attainment of performance goals as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects; (3) to exclude the effects of changes to generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any business divested by us achieved performance objectives at targeted levels during the balance of a performance period following such divestiture; (8) to exclude the effect of any change in the outstanding shares of our common stock by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (9) to exclude the effects of stock based compensation and the award of bonuses under our bonus plans; (10) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to be expensed under generally accepted accounting principles; (11) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles; and (12) to exclude the effects of the timing of acceptance for review and/or approval of submissions to the FDA or any other regulatory body. In addition, we retain the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of the goals. The performance goals may differ from participant to participant and from award to award.

Other Stock Awards. The plan administrator may grant other awards based in whole or in part by reference to our common stock. The plan administrator will set the number of shares under the stock award and all other terms and conditions of such awards.

Changes to Capital Structure. In the event there is a specified type of change in our capital structure, such as a stock split, reverse stock split, or recapitalization, appropriate adjustments will be made to (1) the class and maximum number of shares reserved for issuance under the 2020 Plan, (2) the class and maximum number of shares by which the share reserve may increase automatically each year, (3) the class and maximum number of shares that may be issued on the exercise of incentive stock options, and (4) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.

Corporate Transactions or Change in Control. The following applies to stock awards under the 2020 Plan in the event of a corporate transaction or change in control (each as defined in the 2020 Plan and together referred to as a "transaction" herein), unless otherwise provided in a participant's stock award agreement or other written agreement with us or one of our affiliates or unless otherwise expressly provided by the plan administrator at the time of grant.

In the event of a transaction, any stock awards outstanding under the 2020 Plan may be assumed, continued or substituted for by any surviving or acquiring corporation (or its parent company), and any reacquisition or repurchase rights held by us with respect to the stock award may be assigned to the successor (or its parent company). If the surviving or acquiring corporation (or its parent company) does not assume, continue or substitute for such stock awards, then (1) with respect to any such stock awards that are held by participants whose continuous service has not terminated prior to the effective time of the transaction, or current participants, the vesting (and exercisability, if applicable) of such stock awards will be accelerated in full to a date prior to the effective time of the transaction (contingent upon the effectiveness of the transaction), and such stock awards will terminate if not exercised (if applicable) at or prior to the effective time of the transaction, and any reacquisition or repurchase rights held by us with respect to such stock awards will lapse (contingent upon the effectiveness of the transaction), and (2) any such stock awards that are held by persons other than current participants will terminate if not exercised (if applicable) prior to the effective time of the transaction, except that any reacquisition or repurchase rights held by us with respect to such stock awards will not terminate and may continue to be exercised notwithstanding the transaction.

In the event a stock award will terminate if not exercised prior to the effective time of a transaction, the plan administrator may provide, in its sole discretion, that the holder of such stock award may not exercise such stock award but instead will receive a payment equal in value to the excess (if any) of (1) the value of the property the participant would have received upon the exercise of the stock award over (2) any exercise price payable by such holder in connection with such exercise.

Under our 2020 Plan, a corporate transaction is defined to include: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of more than 50% of our outstanding securities, (3) the consummation of a merger or consolidation where we do not survive the transaction, and (4) the consummation of a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding before such transaction are converted or exchanged into other property by virtue of the transaction, unless otherwise provided in an award agreement or other written agreement between us and the award holder. Under the 2020 Plan, a change in control is defined to include (1) the acquisition by any person or company of more than 50% of the combined voting power of our then outstanding stock; (2) a merger, consolidation or similar transaction in which our stockholders immediately before the transaction do not own, directly or indirectly, more than 50% of the combined voting power of the surviving entity (or the parent of the surviving entity); (3) a sale, lease, exclusive license or other disposition of all or substantially all of our assets other than to an entity more than 50% of the combined voting power of which is owned by our stockholders; and (4) an unapproved change in the majority of the board of directors.

Transferability. A participant may not transfer stock awards under our 2020 Plan other than by will, the laws of descent and distribution, or as otherwise provided under our 2020 Plan.

Plan Amendment or Termination. Our board of directors has the authority to amend, suspend, or terminate our 2020 Plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. Certain material amendments also require the approval of our stockholders. No incentive stock options may be granted after the tenth anniversary of the date our board of directors adopted our 2020 Plan. No stock awards may be granted under our 2020 Plan while it is suspended or after it is terminated.

Amended and Restated 2016 Equity Incentive Plan

Our 2016 Plan was originally adopted by our board of directors and approved by our stockholders in April 2016 and was amended in October 2019 and amended and restated in February 2020. Our 2016 Plan allows for the grant of ISOs to employees, including employees of any parent or subsidiary, and for the grant of NSOs, restricted stock awards, restricted stock units and other stock-based awards to employees, directors, and consultants, including employees and consultants of our affiliates.

Once our 2020 Plan becomes effective, no further grants will be made under our 2016 Plan. Any outstanding awards granted under our 2016 Plan will remain subject to the terms of our 2016 Plan and applicable award agreements.

Authorized Shares. The maximum number of shares of our common stock that may be issued under our 2016 Plan is 17,645,906 shares.

Shares subject to stock awards granted under our 2016 Plan that expire, are forfeited, or terminate without being exercised in full do not reduce the number of shares available for issuance under our 2020 Plan. Additionally, shares used to pay the exercise price of a stock award or to satisfy the tax withholding obligations related to a stock award become available for future grant under our 2016 Plan.

As of June 30, 2020, there were 8,035,209 shares available for the grant of stock awards under our 2016 Plan, and there were outstanding stock options covering a total of 9,563,822 shares that were granted under our 2016 Plan. In addition, stock options covering a total of 5,149,000 shares were issued subsequent to June 30, 2020.

Plan Administration. Our board of directors or a duly authorized committee of our board of directors (referred to herein as the plan administrator) administers our 2016 Plan and the stock awards granted under it. Under our 2016 Plan, the plan administrator has the authority to determine the terms of awards, including: (i) recipients; (ii) the exercise, purchase or strike price of stock awards, if any; (iii) the number of shares subject to each stock award; (iv) the vesting schedule applicable to the awards, together with any vesting acceleration; and (v) the form of consideration, if any, payable on exercise or settlement of the award.

Under the 2016 Plan, the plan administrator also generally has the authority to amend, modify or terminate any outstanding stock awards, including, but not limited to, substituting the award, changing the date of exercise or settlement, and converting an incentive stock option to a nonstatutory stock option; the holder's consent is required unless the plan administrator determines that the action would not materially and adversely affect the holder or the action is otherwise permitted by the 2016 Plan.

Stock Options. ISOs and NSOs are granted pursuant to award agreements adopted by the plan administrator. The plan administrator determines the exercise price for a stock option, within the terms and conditions of the 2016 Plan, provided that the exercise price of a stock option generally cannot be less than 100% (or 110% in the case of ISOs granted to certain stockholders) of the fair market value of our common stock on the date of grant. Options granted under the 2016 Plan vest at the rate specified by the plan administrator. Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include

(1) cash or check, (2) a broker-assisted cashless exercise, (3) delivery or attestation of shares of our common stock previously owned by the holder, (4) a net exercise of the stock option, (5) delivery of a promissory note, (6) other good and valuable consideration, or (7) any combination of the above. The plan administrator determines the term of stock options granted under the 2016 Plan, up to a maximum of ten years (or five years in the case of ISOs granted to certain stockholders). The plan administrator shall determine the effect on a stock award of the disability, death, retirement, authorized leave of absence, or any other change or purported change in a holder's status. Unless the plan administrator provides otherwise, stock options generally are not transferable except by will, the laws of descent and distribution.

Transactions. Our 2016 Plan provides that, in the event of a change in control, certain significant corporate transactions (including, but not limited to, a merger, reorganization or sale of all or substantially all of our assets), any unusual or nonrecurring transaction or event affecting the company or our financial statements, or any change in any applicable laws or accounting principles, the plan administrator may take any of the following actions that it deems appropriate in order to (x) prevent dilution or enlargement of the benefits or potential benefits intended by us to be made available under the 2016 Plan or with respect to any stock award, (y) to facilitate such transaction or event or (z) give effect to such changes in applicable laws or accounting principles:

- provide for the cancellation of any stock award in exchange for an amount of cash or other property with a value equal to what could have been obtained on exercise or settlement of the vested portion of such equity award;
- provide for acceleration of vesting of any stock award;
- provide for the assumption of or substitution of the stock award by the successor or surviving corporation, or a parent or subsidiary thereof,
- make adjustments in the number and type of shares of common stock underlying stock awards and/or terms and conditions of stock awards;
- replace a stock award with other rights or property; and/or
- provide that a stock award shall terminate and cannot vest, be exercised or become payable after the applicable event.

Notwithstanding the above, if a change in control occurs, and a stock award is not continued, converted, assumed, or replaced with a substantially similar award by us or the successor entity, or its parent or subsidiary, and provided that the holder's service with us has not terminated, then immediately prior to the change in control, such stock award shall become fully vested, exercisable and/or payable, as applicable, and all restrictions on the stock award shall lapse. Such awards shall be cancelled upon the consummation of the change in control in exchange for the right to receive the consideration payable to all holders of our common stock in connection with the change in control.

The plan administrator may treat holders and stock awards (or portions thereof) differently.

Under our 2016 Plan, a change in control generally means (i) a merger or consolidation of the company with or into any other corporation or other entity or person; (ii) a sale, lease, exchange, or transfer, in one transaction or a series of related transactions, of all or substantially all of our assets; or (iii) any other transaction, including a sale of new shares of our capital stock or a transfer of our existing shares of capital stock, resulting in a third party that is not an affiliate of the company or one of our stockholders immediately prior to such transaction acquiring or holding a majority of our outstanding voting power immediately following such transaction. The following transactions shall not constitute a change in control: (i) a transaction (other than a sale of all or substantially all of our assets) in which the holders of our outstanding voting securities immediately prior to the merger or consolidation hold, directly or indirectly, at least a majority of the voting securities in the successor

corporation or its parent immediately after the merger or consolidation; (ii) a sale, lease, exchange, or other transaction in one transaction or a series of related transactions of all or substantially all of our assets to our affiliate; (iii) an initial public offering; (iv) a reincorporation solely to change our jurisdiction; or (v) a transaction undertaken for the primary purpose of creating a holding company that will be owned in substantially the same proportion by the persons who held our securities immediately before such transaction.

Plan Amendment or Termination. Our board of directors has the authority to amend, suspend, or terminate our 2016 Plan; provided that no amendment of the 2016 Plan shall materially and adversely affect any outstanding stock award without the consent of the affected holder. Certain material amendments require the approval of our stockholders.

2020 Employee Stock Purchase Plan

Our board of directors adopted, and our stockholders approved, our 2020 Employee Stock Purchase Plan, or ESPP, in . The ESPP will become effective on the execution of the underwriting agreement related to this offering. The purpose of the ESPP is to secure the services of new employees, to retain the services of existing employees, and to provide incentives for such individuals to exert maximum efforts toward our success and that of our affiliates. The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code for U.S. employees.

Share Reserve. Following this offering, the ESPP authorizes the issuance of shares of our common stock under purchase rights granted to our employees or to employees of any of our designated affiliates. The number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year, beginning on January 1, 2021 (assuming the ESPP becomes effective in 2020) through January 1, 2030, by the lesser of (1) % of the total number of shares of our common stock outstanding on the last day of the calendar month before the date of the automatic increase, and (2) shares; provided that before the date of any such increase, our board of directors may determine that such increase will be less than the amount set forth in clauses (1) and (2). As of the date hereof, no shares of our common stock have been purchased under the ESPP.

Administration. Our board of directors has delegated its authority to administer the ESPP to our compensation committee. The ESPP is implemented through a series of offerings under which eligible employees are granted purchase rights to purchase shares of our common stock on specified dates during such offerings. Under the ESPP, we may specify offerings with durations of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for employees participating in the offering. We currently intend to have 24-month offerings with multiple purchase periods (of approximately six months in duration) per offering, except that the first purchase period under our first offering may be shorter or longer than six months, depending on the date on which the underwriting agreement relating to this offering becomes effective. An offering under the ESPP may be terminated under certain circumstances.

Payroll Deductions. Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the ESPP and may contribute, normally through payroll deductions, up to % of their earnings (as defined in the ESPP) for the purchase of our common stock under the ESPP. Unless otherwise determined by our board of directors, common stock will be purchased for the accounts of employees participating in the ESPP at a price per share that is at least the lesser of (1) 85% of the fair market value of a share of our common stock on the first date of an offering, or (2) 85% of the fair market value of a share of our common stock on the date of purchase. For the initial offering, which we expect will commence on the execution and delivery of the

underwriting agreement relating to this offering, the fair market value on the first day of the offering period will be the price at which shares of common stock are first sold to the public.

Limitations. Employees may have to satisfy one or more of the following service requirements before participating in the ESPP, as determined by our board of directors, including: (1) being customarily employed for more than 20 hours per week, (2) being customarily employed for more than five months per calendar year, or (3) continuous employment with us or one of our affiliates for a period of time (not to exceed two years). No employee may purchase shares under the ESPP at a rate in excess of $25,000 worth of our common stock based on the fair market value per share of our common stock at the beginning of an offering for each year such a purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock measured by vote or value under Section 424(d) of the Code.

Changes to Capital Structure. In the event that there occurs a change in our capital structure through such actions as a stock split, merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, liquidating dividend, combination of shares, exchange of shares, change in corporate structure, or similar transaction, the board of directors will make appropriate adjustments to: (1) the number of shares reserved under the ESPP, (2) the maximum number of shares by which the share reserve may increase automatically each year, (3) the number of shares and purchase price of all outstanding purchase rights, and (4) the number of shares that are subject to purchase limits under ongoing offerings.

Corporate Transactions. In the event of certain significant corporate transactions, including: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of 90% of our outstanding securities, (3) the consummation of a merger or consolidation where we do not survive the transaction, and (4) the consummation of a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction, any then-outstanding rights to purchase our stock under the ESPP may be assumed, continued or substituted for by any surviving or acquiring entity (or its parent company). If the surviving or acquiring entity (or its parent company) elects not to assume, continue, or substitute for such purchase rights, then the participants' accumulated payroll contributions will be used to purchase shares of our common stock within ten business days before such corporate transaction, and such purchase rights will terminate immediately.

ESPP Amendment or Termination. Our board of directors has the authority to amend or terminate our ESPP, provided that except in certain circumstances such amendment or termination may not materially impair any outstanding purchase rights without the holder's consent. We will obtain stockholder approval of any amendment to our ESPP as required by applicable law or listing requirements.

401(k) Plan

We maintain a 401(k) plan that provides eligible U.S. employees with an opportunity to save for retirement on a tax advantaged basis. Eligible employees are able to defer eligible compensation up to certain Code limits, which are updated annually. We have the ability to make matching and discretionary contributions to the 401(k) plan. Currently, we do not make matching contributions or discretionary contributions to the 401(k) plan. The 401(k) plan is intended to be qualified under Section 401(a) of the Code, with the related trust intended to be tax exempt under Section 501(a) of the Code. As a tax-qualified retirement plan, contributions to the 401(k) plan are deductible by us when made, and contributions and earnings on those amounts are not generally taxable to the employees until withdrawn or distributed from the 401(k) plan.

Limitations on Liability and Indemnification

On the closing of this offering, our amended and restated certificate of incorporation will contain provisions that limit the liability of our current and former directors for monetary damages to the fullest extent permitted by Delaware law. Delaware law provides that directors of a corporation will not be personally liable for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to the corporation or its stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions; or
- any transaction from which the director derived an improper personal benefit.

Such limitation of liability does not apply to liabilities arising under federal securities laws and does not affect the availability of equitable remedies such as injunctive relief or rescission.

Our amended and restated certificate of incorporation will authorize us to indemnify our directors, officers, employees and other agents to the fullest extent permitted by Delaware law. Our amended and restated bylaws will provide that we are required to indemnify our directors and officers to the fullest extent permitted by Delaware law and may indemnify our other employees and agents. Our amended and restated bylaws will also provide that, on satisfaction of certain conditions, we will advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee, or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under the provisions of Delaware law. We have entered and expect to continue to enter into agreements to indemnify our directors, executive officers and other employees as determined by the board of directors. With certain exceptions, these agreements provide for indemnification for related expenses including attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding.

We believe that these amended and restated certificate of incorporation and amended and restated bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain customary directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against our directors for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and other stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted for directors, executive officers, or persons controlling us, we have been informed that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Rule 10b5-1 Plans

Our directors and officers may adopt written plans, known as Rule 10b5-1 plans, in which they will contract with a broker to buy or sell shares of our common stock on a periodic basis. Under a Rule 10b5-1 plan, a broker executes trades under parameters established by the director or officer when entering into the plan, without further direction from them. The director or officer may amend a Rule 10b5-1 plan in some circumstances and may terminate a plan at any time. Our directors and executive officers may also buy or sell additional shares outside of a Rule 10b5-1 plan when they do not possess of material nonpublic information, subject to compliance with the terms of our insider trading policy. During the first 180 days from this offering, the sale of any shares under such plan would be subject to the lock-up agreement that the director or officer has entered into with the underwriters.

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

The following includes a summary of transactions since January 1, 2017 to which we have been a party in which the amount involved exceeded or will exceed the lesser of $120,000 or 1% of the average of our total assets as of December 31, 2018 and 2019, and in which any of our directors, executive officers or, to our knowledge, beneficial owners of more than 5% of our capital stock or any member of the immediate family of any of the foregoing persons had or will have a direct or indirect material interest, other than equity and other compensation, termination, change in control and other arrangements, which are described under "Executive Compensation." We also describe below certain other transactions with our directors, executive officers and stockholders.

Series A Redeemable Convertible Preferred Stock Financing

In May 2016, we completed the closing of an aggregate of 20,000,000 shares of our Series A redeemable convertible preferred stock at a purchase price of $1.00 per share. In February 2019, we completed the closing of an aggregate of an additional 8,000,000 shares of our Series A redeemable convertible preferred stock, at the same purchase price per share.

The following table summarizes purchases of shares of our Series A redeemable convertible preferred stock by holders of more than 5% of our capital stock and entities affiliated with members of our board of directors.

Participants[1]	Shares of Series A Redeemable Convertible Preferred Stock Purchased at 2016 Closing	Aggregate Purchase Price at 2016 Closing	Shares of Series A Redeemable Convertible Preferred Stock Purchased at 2019 Closing	Aggregate Purchase Price at 2019 Closing
Novo Holdings A/S[2]	15,000,000	$15,000,000.00	6,000,000	$6,000,000.00
Entities affiliated with RiverVest Venture Fund III, L.P.[3]	5,000,000	$ 5,000,000.00	2,000,000	$2,000,000.00

(1) Additional details regarding these stockholders and their equity holdings are included in this prospectus under the caption "Principal Stockholders."

(2) Dr. Aynechi, a member of our board of directors, is employed as a senior partner at Novo Ventures (US) Inc., which provides certain consultancy services to Novo Holdings A/S.

(3) Consists of (i) at the 2016 closing, (a) 4,748,000 shares of Series A redeemable convertible preferred stock purchased by RiverVest Venture Fund III, L.P., and (b) 252,000 shares of Series A redeemable convertible preferred stock purchased by RiverVest Venture Fund III (Ohio), L.P, and (ii) at the 2019 closing, (a) 1,899,200 shares of Series A redeemable convertible preferred stock purchased by RiverVest Venture Fund III, L.P., and (b) 100,800 shares of Series A redeemable convertible preferred stock purchased by RiverVest Venture Fund III (Ohio), L.P. Dr. O'Donnell, a member of our board of directors, is a manager at RiverVest Venture Partners and is an affiliate of RiverVest Venture Fund III, L.P. and RiverVest Venture Fund III (Ohio), L.P.

Series B Redeemable Convertible Preferred Stock Financing

In February 2020, we completed the initial closing of an aggregate of 36,666,665 shares of our Series B redeemable convertible preferred stock at a purchase price of $1.20 per share. In addition, in August 2020, the purchasers in the initial closing purchased an aggregate of 36,666,665 additional shares of our Series B redeemable convertible preferred stock at the same purchase price per share in a subsequent closing.

The following table summarizes purchases of shares of our Series B redeemable convertible preferred stock by holders of more than 5% of our capital stock and entities affiliated with members of our board of directors.

Participants[1]	Shares of Series B Redeemable Convertible Preferred Stock Purchased at Initial Closing	Aggregate Purchase Price at Initial Closing	Shares of Series B Redeemable Convertible Preferred Stock Purchased at Subsequent Closing	Aggregate Purchase Price at Subsequent Closing
Omega Fund VI, L.P.[2]	6,250,000	$7,500,000.00	6,250,000	$7,500,000.00
HealthCap VIII L.P.[3]	5,833,333	$6,999,999.60	5,833,333	$6,999,999.60
Abingworth Bioventures VII LP[4]	5,208,333	$6,249,999.60	5,208,333	$6,249,999.60
Novo Holdings A/S[5]	5,000,000	$6,000,000.00	5,000,000	$6,000,000.00
Rock Springs Capital Master Fund LP	3,333,333	$3,999,999.60	3,333,333	$3,999,999.60
Aisling Capital V, LP	3,125,000	$3,750,000.00	3,125,000	$3,750,000.00
Citadel Multi-Strategy Equities Master Fund Ltd.	3,125,000	$3,750,000.00	3,125,000	$3,750,000.00
Entities affiliated with RiverVest Venture Fund III, L.P.[6]	2,708,333	$3,249,999.60	2,708,333	$3,249,999.60

(1) Additional details regarding these stockholders and their equity holdings are included in this prospectus under the caption “Principal Stockholders.”

(2) Dr. Chaya, a member of our board of directors, is an advisor to Omega Fund Management, LLC, an entity affiliated with Omega Fund VI, L.P.

(3) Mr. Hansson, a member of our board of directors, is employed as a partner at HealthCap Advisor AB, an entity affiliated with HealthCap VIII L.P.

(4) Dr. Muralidhar, a member of our board of directors, is employed as a partner at Abingworth LLP, an entity affiliated with Abingworth Bioventures VII, LP.

(5) Dr. Aynechi, a member of our board of directors, is employed as a senior partner at Novo Ventures (US) Inc., which provides certain consultancy services to Novo Holdings A/S.

(6) Consists of (i) 2,374,000 shares of Series B redeemable convertible preferred stock purchased by RiverVest Venture Fund III, L.P., (ii) 126,000 shares of Series B redeemable convertible preferred stock purchased by RiverVest Venture Fund III (Ohio), L.P., and (iii) 2,916,666 shares of Series B redeemable convertible preferred stock purchased by RiverVest Venture Fund IV, L.P. Dr. O’Donnell, a member of our board of directors, is a manager at RiverVest Venture Partners and is an affiliate of RiverVest Venture Fund III, L.P. and RiverVest Venture Fund III (Ohio), L.P, and a manager of RiverVest Venture Partners IV, LLC, the general partner of RiverVest Venture Fund IV, L.P.

Consulting Agreement

In May 2016, we entered into a consulting agreement with an immediate family member of a former executive officer to provide services for a monthly retainer of $5,000. In connection with the consulting agreement, the immediate family member of a former executive officer received an option grant to purchase 60,000 shares of our common stock. The consulting agreement was amended in November 2016 to expand the consultant’s role to include additional responsibilities and increase the fee to $10,000 per month and options on 5,000 shares per month, and was subsequently amended in May 2017 to reduce the fee back to $5,000 in connection with a reduction in responsibilities.

The consulting agreement was terminated in July 2019. In connection with the termination of the agreement, 27,500 shares underlying the aforementioned option grant were forfeited. For the years ended December 31, 2018 and 2019, the fees under the consultant agreement totaled $60,000 and $30,000, respectively.

Employment Agreements, Consulting Agreement and Stock Option Grants to Directors and Executive Officers

We have entered into employment agreements and consulting agreements with certain of our named executive officers, and granted stock options to our named executive officers and certain of our directors, as more fully described in the sections titled "Executive Compensation" and "Management—Non-Employee Director Compensation".

Investors' Rights Agreement

In February 2020, we entered into an Amended and Restated Investors' Rights Agreement, or the Rights Agreement, with certain holders of more than 5% of our outstanding capital stock, including Abingworth Bioventures VII LP, Aisling Capital V, LP, Citadel Multi-Strategy Equities Master Fund Ltd., HealthCap VIII L.P., Novo Holdings A/S, Omega Fund VI, L.P., entities affiliated with RiverVest Venture Fund III, L.P., and Rock Springs Capital Master Fund LP, and including certain affiliates of our directors.

The Rights Agreement grants certain rights to the holders of our outstanding redeemable convertible preferred stock, including certain registration rights with respect to the registrable securities held by them. See "Description of Capital Stock—Registration Rights" for additional information.

In addition, the Rights Agreement imposes certain affirmative obligations on us, including our obligation to, among other things, grant each holder who holds at least 4,000,000 shares of our redeemable convertible preferred stock, or the Major Investors, a right of first offer with respect to future sales of our equity, excluding the shares to be offered and sold in this offering, and grant certain information and inspection rights to such Major Investors. Each of these obligations will terminate in connection with the closing of this offering.

Voting Agreement

In February 2020, we entered into an Amended and Restated Voting Agreement, or the Voting Agreement, with certain holders of more than 5% of our outstanding capital stock, including Abingworth Bioventures VII LP, Aisling Capital V, LP, Citadel Multi-Strategy Equities Master Fund Ltd., HealthCap VIII L.P., Novo Holdings A/S, Omega Fund VI, L.P., entities affiliated with RiverVest Venture Fund III, L.P., and Rock Springs Capital Master Fund LP, certain affiliates of our directors, a former executive officer, and an immediate family member of a former executive officer.

Pursuant to the Voting Agreement, each of Novo Holdings A/S, entities affiliated with RiverVest Venture Fund III, L.P., Omega Fund VI, L.P., Abingworth Bioventures VII LP, and HealthCap VIII L.P. have the right to designate one member to be elected to our board of directors. See "Management—Composition of our Board of Directors." The Voting Agreement will terminate by its terms in connection with the closing of this offering and none of our stockholders will have any continuing rights regarding the election or designation of members of our board of directors following this offering.

Right of First Refusal and Co-Sale Agreement

In February 2020, we entered into an Amended and Restated Right of First Refusal and Co-Sale Agreement, or the Co-Sale Agreement, with certain holders of more than 5% of our outstanding capital stock, including Abingworth Bioventures VII LP, Aisling Capital V, LP, Citadel Multi-Strategy Equities Master Fund Ltd., HealthCap VIII L.P., Novo Holdings A/S, Omega Fund VI, L.P., entities affiliated with RiverVest Venture Fund III, L.P., and Rock Springs Capital Master Fund LP, certain affiliates of our directors, a former executive officer, and an immediate family member of a former executive officer.

Pursuant to the Co-Sale Agreement, we have a right of first refusal in respect of certain sales of securities by certain holders of our common stock and preferred stock, including holders of more than

5% of our outstanding capital stock, a former executive officer, and an immediate family member of a former executive officer. To the extent we do not exercise such right in full, the Major Investors are granted certain rights of first refusal and co-sale in respect of such sale. The Co-Sale Agreement will terminate in connection with the closing of this offering.

Indemnification Agreements

Our amended and restated certificate of incorporation will contain provisions limiting the liability of directors, and our amended and restated bylaws will provide that we will indemnify each of our directors and officers to the fullest extent permitted under Delaware law. Our amended and restated certificate of incorporation and amended and restated bylaws will also provide our board of directors with discretion to indemnify our employees and other agents when determined appropriate by the board. In addition, we have entered into or intend to enter into an indemnification agreement with each of our directors and executive officers, which will require us to indemnify them. For more information regarding these agreements, see “Executive Compensation—Limitations on Liability and Indemnification Matters.”

Policies and Procedures for Transactions with Related Persons

Prior to closing of this offering, we intend to adopt a written policy that our executive officers, directors, nominees for election as a director, beneficial owners of more than 5% of any class of our common stock and any members of the immediate family of any of the foregoing persons are not permitted to enter into a related person transaction with us without the approval or ratification of our board of directors or our audit committee. Any request for us to enter into a transaction with an executive officer, director, nominee for election as a director, beneficial owner of more than 5% of any class of our common stock, or any member of the immediate family of any of the foregoing persons, in which the amount involved exceeds $120,000 (or, if less, 1% of the average of our total assets in a fiscal year) and such person would have a direct or indirect interest, must be presented to our board of directors or our audit committee for review, consideration and approval. In approving or rejecting any such proposal, our board of directors or our audit committee is to consider the material facts of the transaction, including whether the transaction is on terms no less favorable than terms generally available to an unaffiliated third party under the same or similar circumstances and the extent of the related person’s interest in the transaction.

PRINCIPAL STOCKHOLDERS

The following table sets forth information regarding beneficial ownership of our capital stock as of June 15, 2020 by:

- each person, or group of affiliated persons, known by us to beneficially own more than 5% of our common stock;
- each of our directors;
- each our of named executive officers; and
- all of our current executive officers and directors as a group.

We have determined beneficial ownership in accordance with the rules and regulations of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. Except as indicated by the footnotes below, we believe, based on information furnished to us, that the persons and entities named in the table below have sole voting and sole investment power with respect to all shares that they beneficially own, subject to applicable community property laws.

Applicable percentage ownership before the offering is based on 106,380,205 shares of our common stock outstanding as of June 15, 2020, after giving effect to the issuance and sale of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020 and the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into 101,333,330 shares of our common stock in connection with the closing of this offering.

Applicable percentage ownership after the offering is based on shares of common stock outstanding immediately after the closing of this offering, after giving effect to the issuance and sale of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020 and the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into 101,333,330 shares of our common stock in connection with the closing of this offering. In computing the number of shares beneficially owned by a person and the percentage ownership of such person, we deemed to be outstanding all shares subject to options held by the person that are currently exercisable, or exercisable within 60 days of June 15, 2020. However, except as described above, we did not deem such shares outstanding for the purpose of computing the percentage ownership of any other person.

Unless otherwise indicated, the address for each beneficial owner listed in the table below is c/o Spruce Biosciences, Inc., 2001 Junipero Serra Boulevard, Suite 640, Daly City, California 94014.

Name of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering
Greater than 5% Holders:			
Novo Holdings A/S(1)	31,000,000	29.1%	%
Omega Fund VI, L.P.(2)	12,500,000	11.8%	
Entities affiliated with RiverVest Venture Fund III, L.P.(3)	12,416,666	11.7%	
HealthCap VIII L.P.(4)	11,666,666	11.0%	
Abingworth Bioventures VII LP(5)	10,416,666	9.8%	
Rock Springs Capital Master Fund LP(6)	6,666,666	6.3%	
Aisling Capital V, LP(7)	6,250,000	5.9%	
Citadel Multi-Strategy Equities Master Fund Ltd.(8)	6,250,000	5.9%	
Directors and Named Executive Officers:			
Alexis Howerton, Ph.D.(9)	4,650,000	4.3%	%
Richard King(10)	2,942,406	2.7%	
Niall O'Donnell, Ph.D.(3)	2,916,666	2.7%	
Michael Grey(11)	1,048,916	1.0%	
Michael Huang, M.D.(12)	300,000	*	
Camilla V. Simpson, M.Sc.(13)	254,291	*	
Dina Chaya, Ph.D., C.F.A.	–	*	
Bali Muralidhar, M.D., Ph.D.	–	*	
Jonas Hansson, M.Sc.	–	*	
Tiba Aynechi, Ph.D.	–	*	
All directors and executive officers as a group (9 persons)(14)	7,937,279	7.1%	

* Represents beneficial ownership of less than 1%.

(1) Consists of (a) 21,000,000 shares of common stock issuable upon conversion of the Series A redeemable convertible preferred stock held by Novo Holdings A/S, or Novo, and (b) 10,000,000 shares of common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by Novo. The board of directors of Novo has shared voting and investment power with respect to the shares held by Novo and may exercise such control only with the support of a majority of the members of the Novo board of directors. As such, no individual member of the Novo board of directors is deemed to hold any beneficial ownership or reportable pecuniary interest in the shares held by Novo. Dr. Aynechi, a member of our board of directors, is employed as a senior partner at Novo Ventures (US) Inc., which provides certain consultancy services to Novo, and Dr. Aynechi is not deemed to have beneficial ownership of the shares held by Novo. The address for Novo is Tuborg Havnevej 19, DK-2900 Hellerup, Denmark.

(2) Consists of 12,500,000 shares of our common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by Omega Fund VI, L.P., or Omega. Otello Stampacchia, Claudio Nessi and Anne-Mari Paster are the directors of Omega Fund VI GP Manager, Ltd., or Omega Manager, which is the sole general partner of Omega Fund VI GP, L.P., or Omega GP, which is the sole general partner of Omega. Messrs. Stampacchia and Nessi and Ms. Paster may be deemed to share voting and dispositive power over the shares held by Omega. Each of such individuals, together with Omega GP and Omega Manager and Dina Chaya, disclaims beneficial ownership of the shares held by Omega, except to the extent of their pecuniary interest therein. Dr. Chaya, a member of our board of directors, is an advisor at Omega Fund Management, LLC, an entity affiliated with Omega Fund VI, L.P. The address of Omega Fund VI, L.P. is 888 Boylston Street, Suite 1111, Boston, Massachusetts 02199.

(3) Consists of (i) 352,800 shares of common stock issuable upon conversion of the Series A redeemable convertible preferred stock held by RiverVest Venture Fund III (Ohio), L.P., (ii) 126,000 shares of common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by RiverVest Venture Fund III (Ohio), L.P., (iii) 6,647,200 shares of common stock issuable upon conversion of the Series A redeemable convertible preferred stock held by RiverVest Venture Fund III, L.P., (iv) 2,374,000 shares of

common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by RiverVest Venture Fund III, L.P, and (v) 2,916,666 shares of common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by RiverVest Venture Fund IV, L.P. The shares held directly by RiverVest Venture Fund III, L.P. are indirectly held by RiverVest Venture Partners III, L.P., its general partner, or RiverVest Partners III. The shares held directly by RiverVest Venture Fund III (Ohio), L.P. are indirectly held by RiverVest Venture Partners III (Ohio), LLC, its general partner, or RiverVest Partners (Ohio) III. RiverVest Partners III is the sole member of RiverVest Partners (Ohio) III. RiverVest Venture Partners III, LLC is the general partner of RiverVest Partners III. The individual managers of RiverVest Ventures Partners III, LLC are Thomas C. Melzer, Jay Schmelter and John P. McKearn, Ph.D. RiverVest Partners III, RiverVest Partners (Ohio) III, RiverVest Venture Partners III, LLC and each of the individual managers share voting and dispositive power with regard to the Company's securities directly held by RiverVest Venture Fund III, L.P. and RiverVest Venture Fund III (Ohio), L.P. Niall O'Donnell, a member of our board of directors and an affiliate of RiverVest Venture Fund III, L.P. and RiverVest Venture Fund III (Ohio), L.P., has no voting or investment control over any of the shares held by these entities and disclaims beneficial ownership of all shares owned by RiverVest Venture Fund III, L.P. and RiverVest Venture Fund III (Ohio), L.P., except to the extent of any pecuniary interest therein. All indirect holders of the above referenced securities disclaim beneficial ownership of the above referenced securities except to the extent of their pecuniary interests therein. The shares held directly by RiverVest Venture Fund IV, L.P. are indirectly held by RiverVest Venture Partners IV, L.P., its general partner, or RiverVest Partners IV. RiverVest Venture Partners IV, LLC is the general partner of RiverVest Partners IV. The individual managers of RiverVest Ventures Partners IV, LLC are Jay Schmelter, John P. McKearn, Ph.D. and Niall O'Donnell, a member of our board of directors. RiverVest Partners IV, RiverVest Venture Partners IV, LLC and each of the individual managers share voting and dispositive power with regard to the Company's securities directly held by RiverVest Venture Fund IV, L.P. All indirect holders of the above referenced securities disclaim beneficial ownership of the above referenced securities except to the extent of their pecuniary interests therein. The address of RiverVest Venture Fund III and its affiliated entities is 101 South Hanley Road, Suite 1850, St. Louis, Missouri 63105.

(4) Consists of 11,666,666 shares of our common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by HealthCap VIII L.P., or HCLP. HealthCap VIII GP SA, L.L.C., or HCSA, is the sole general partner of HCLP. HCSA has voting and dispositive power over the shares of our capital stock held by HCLP. HCSA disclaims beneficial ownership of such shares, except to the extent of their pecuniary interest therein. Johan Christenson, Carl-Johan Dalsgaard, Per-Olof Eriksson, Jacob Gunterberg, Staffan Lindstrand, Björn Odlander, Per Samuelsson, Mårten Steen, Jonas Hansson, a member of our board, Eugen Steiner, Marile Schiess and Alex Valcu, the members of HCSA, may be deemed to possess voting and dispositive power over the shares held by HCLP and may be deemed to have indirect beneficial ownership of the shares held by such entities. The members, including Mr. Hansson who is a member of our board, disclaim beneficial ownership of shares held by HCLP except to the extent of any pecuniary interest therein. The address of HealthCap VIII L.P. is Avenue d'Ouchy 18, CH-1006, Lausanne, Switzerland.

(5) Consists of 10,416,666 shares of our common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by Abingworth Bioventures VII LP. Abingworth Bioventures VII GP LP, a Scottish limited partnership, serves as the general partner of Abingworth Bioventures VII LP, or ABV VII. Abingworth General Partner VI LLP, an English limited liability partnership (together with Abingworth Bioventures VII GP LP, the General Partners), serves as the general partner of Abingworth Bioventures VII GP LP. ABV VII (acting by its general partner Abingworth Bioventures VII GP LP, acting by its general partner Abingworth General Partner VII LLP) has delegated to Abingworth all investment and dispositive power over the securities held by ABV VII. An investment committee of Abingworth, or the investment committee, comprised of Timothy Haines, Kurt von Emster, Shelly Chu, Brian Gallagher, Genghis Lloyd- Harris, and Bali Muralidhar, a member of our board of directors, approves investment and voting decisions by a majority vote, and no individual member has the sole control or voting power over the securities held by ABV VII. Each of Abingworth, Abingworth Bioventures VII GP LP, Abingworth General Partner VII LLP, and each member of the investment committee disclaims beneficial ownership of the shares of our Series B redeemable convertible preferred stock held by ABV VII. The address of Abingworth Bioventures VII LP is 38 Jermyn Street, London, SW1Y6DN UK.

(6) Consists of 6,666,666 shares of our common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by Rock Springs Capital Master Fund LP. The address of Rock Springs Capital Master Fund LP is 650 South Exeter Street, Suite 1070, Baltimore, MD 21202.

(7) Consists of 6,250,000 shares of our common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by Aisling Capital V, LP, or Aisling. These shares are owned directly by Aisling and held indirectly by Aisling Capital Partners V, LP, or Aisling GP, as general partner of Aisling, Aisling Capital Partners V LLC, or Aisling Partners, as general partner of Aisling GP, and each of the individual managing members of Aisling Partners. The individual managing members, collectively the managers, of Aisling Partners are Dr. Andrew Schiff and Steve Elms. Aisling GP, Aisling Partners and the managers share voting and dispositive power over the shares directly held by Aisling. Each of Aisling GP, Aisling Partners and the managers may be deemed to be the beneficial owner of the securities listed above only to the extent of its pecuniary interest therein. The above information shall not be deemed an admission that any of Aisling GP, Aisling Partners or any of the managers is the beneficial owner of any securities reported herein in excess of such amount. The address of Aisling Capital V, LP is 888 7th Ave, 12th Floor, New York, NY 10106.

(8) Consists of 6,250,000 shares of our common stock issuable upon conversion of the Series B redeemable convertible preferred stock held by Citadel Multi-Strategy Equities Master Fund Ltd., or Citadel. Citadel Advisors LLC, or Citadel Advisors, acts as the portfolio manager of Citadel. Citadel Advisors Holdings LP, or CAH, is the sole member of Citadel Advisors, and Citadel GP LLC, or CGP, is the general partner of CAH. Kenneth Griffin owns a controlling interest in CGP and may be deemed to share voting and dispositive power over shares held by Citadel. The address for this entity is c/o Citadel Advisors, 601 Lexington Avenue, New York, New York 10022.

(9) Consists of (i) 3,750,000 shares of our common stock held by Dr. Howerton, and (ii) 900,000 shares of our common stock subject to options exercisable within 60 days of June 15, 2020.

(10) Consists of 2,942,406 shares of our common stock subject to options exercisable within 60 days of June 15, 2020 held by Mr. King, 738,938 of which are vested as of such date, and 265,000 of which vest only in connection with the closing of a specified initial public offering or of a specified deemed liquidation event, as defined in our amended and restated certificate of incorporation, in addition to the completion of other vesting conditions.

(11) Consists of 1,048,916 shares of our common stock subject to options exercisable within 60 days of June 15, 2020 held by Mr. Grey, 488,228 of which are vested as of such date, and 85,000 of which vest only in connection with the closing of a specified initial public offering or of a specified deemed liquidation event, as defined in our amended and restated certificate of incorporation, in addition to the completion of other vesting conditions.

(12) Consists of 300,000 shares of our common stock subject to options exercisable within 60 days of June 15, 2020 held by Dr. Huang.

(13) Consists of 254,291 shares of our common stock subject to options exercisable within 60 days of June 15, 2020 held by Ms. Simpson, 118,124 of which are vested as of such date.

(14) Consists of certain shares described in notes 3, 10-11, and 13 above, and 775,000 shares of our common stock subject to options exercisable within 60 days of June 15, 2020 held by Mr. Gharib, none of which are vested as of such date.

DESCRIPTION OF CAPITAL STOCK

General

The following description of our capital stock and certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws are summaries and are qualified by reference to the amended and restated certificate of incorporation and the amended and restated bylaws, each of which will become effective upon the closing of this offering. Copies of these documents have been filed with the SEC as exhibits to our registration statement, of which this prospectus forms a part. The descriptions of the common stock and preferred stock reflect changes to our capital structure that will be in effect on the closing of this offering.

Upon filing of our amended and restated certificate of incorporation and the closing of this offering, our authorized capital stock will consist of shares of common stock, par value $0.0001 per share, and shares of preferred stock, par value $0.0001 per share. All of our authorized shares of preferred stock will be undesignated.

As of June 30, 2020, after giving effect to the issuance and sale of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020 and the automatic conversion of all outstanding shares of our redeemable convertible preferred stock, into 101,333,330 shares of our common stock in connection with the closing of this offering, there were 106,380,205 shares of common stock outstanding and held of record by 14 stockholders.

Common Stock

Voting Rights

The common stock is entitled to one vote per share on any matter that is submitted to a vote of our stockholders. Our amended and restated certificate of incorporation does not provide for cumulative voting for the election of directors. Our amended and restated certificate of incorporation establishes a classified board of directors that is divided into three classes with staggered three-year terms. Only the directors in one class will be subject to election by a plurality of the votes cast at each annual meeting of our stockholders, with the directors in the other classes continuing for the remainder of their respective three-year terms.

Economic Rights

Except as otherwise expressly provided in our amended and restated certificate of incorporation or required by applicable law, all shares of common stock will have the same rights and privileges and rank equally, share ratably, and be identical in all respects for all matters, including those described below.

Dividends. Subject to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and then only at the times and in the amounts that our board of directors may determine. See the section titled “Dividend Policy” for further information.

Liquidation Rights. On our liquidation, dissolution, or winding-up, the holders of common stock will be entitled to share equally, identically, and ratably in all assets remaining after the payment of any liabilities, liquidation preferences and accrued or declared but unpaid dividends, if any, with respect to any outstanding preferred stock, unless a different treatment is approved by the affirmative vote of the holders of a majority of the outstanding shares of such affected class, voting separately as a class.

No Preemptive or Similar Rights

The holders of our shares of common stock are not entitled to preemptive rights, and are not subject to conversion, redemption or sinking fund provisions.

Fully Paid and Non-Assessable

In connection with this offering, our legal counsel will opine that the shares of our common stock to be issued under this offering will be fully paid and non-assessable.

Preferred Stock

As of June 30, 2020, there were 28,000,000 shares of our Series A redeemable convertible preferred stock outstanding, held of record by three holders, and 73,333,330 shares of our Series B redeemable convertible preferred stock outstanding, after giving effect to the issuance and sale of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020, held of record by 11 holders. Immediately prior to the closing of this offering, each outstanding share of our redeemable convertible preferred stock will convert into one share of our common stock. In addition, immediately prior to the closing of this offering, our certificate of incorporation will be amended and restated to delete all references to such shares of redeemable convertible preferred stock. Under the amended and restated certificate of incorporation, our board of directors will have the authority, without further action by the stockholders, to issue up to shares of preferred stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences and privileges of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding.

Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in our control that may otherwise benefit holders of our common stock and may adversely affect the market price of the common stock and the voting and other rights of the holders of common stock. We have no current plans to issue any shares of preferred stock.

Warrants

As of June 30, 2020, we had an outstanding warrant to purchase up to 324,499 shares of our common stock with an exercise price of $0.22 per share and an expiration date of September 23, 2029.

The above warrant has a net exercise provision under which the holder may, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of our common stock at the time of the net exercise of the warrant after deduction of the aggregate exercise price. The warrant also contains provisions for the adjustment of the exercise price and the aggregate number of shares issuable upon the exercise of the warrant in the event of stock dividends, stock splits, reclassifications, exchanges, combinations or substitutions. In the event that, upon the expiration date, the fair market value of our common stock is greater than the exercise price of the warrant, then the warrant will automatically be deemed to be exercised.

Registration Rights

We are party to the Rights Agreement, which provides, in relevant part, that certain holders of our capital stock, including certain holders of at least 5% of our capital stock and entities affiliated with certain of our directors, shall have certain registration rights, as set forth below. The registration of

shares of our common stock by the exercise of registration rights described below would enable the holders to sell these shares without restriction under the Securities Act when the applicable registration statement is declared effective. We are obligated to pay the registration expenses, other than underwriting discounts and commissions, of the shares registered by the demand, piggyback and Form S-3 registrations described below.

Generally, in an underwritten offering, the managing underwriter, if any, has the right, subject to specified conditions, to limit the number of shares such holders may include. The demand, piggyback and Form S-3 registration rights described below with respect to any holder will expire upon the earliest to occur of: (i) the fifth anniversary of the initial public offering, (ii) the closing of a deemed liquidation event, as defined in our amended and restated certificate of incorporation, and (iii) such time as Rule 144 or another similar exemption under the Securities Act is available for the sale of all of such holder's shares without limitation during a three-month period without registration.

Demand Registration Rights

After this offering, the holders of an aggregate of 101,333,330 shares of our common stock will be entitled to certain demand registration rights. With certain exceptions, at any time beginning 180 days after the effective date of the registration statement, of which this prospectus is a part, the holders of a majority of these shares may request that we register all or a portion of their shares. In connection with a request for demand registration, we are not required to effect more than two registration statements which are declared or ordered effective. Such request for registration must cover shares with an anticipated aggregate offering price of at least $5.0 million.

Piggyback Registration Rights

In connection with this offering, the holders of an aggregate of 101,333,330 shares of our common stock were entitled to, and the necessary percentage of holders waived, their rights to notice of this offering and to include their shares of registrable securities in this offering. After this offering, in the event that we propose to register any of our securities under the Securities Act, either for our own account or for the account of other security holders, the holders of these shares will be entitled to certain piggyback registration rights allowing the holder to include their shares in such registration, subject to certain marketing and other limitations. As a result, whenever we propose to file a registration statement under the Securities Act, other than with respect to a demand registration or a registration (i) relating to the sale of securities to employees pursuant to a stock option, stock purchase, or similar plan, (ii) relating to a Rule 145 transaction, (iii) on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of registrable securities, or (iv) in which the only common stock being registered is common stock issuable upon conversion of debt securities that are also being registered, the holders of these shares are entitled to notice of the registration and have the right to include their shares in the registration, subject to limitations that the underwriters may impose on the number of shares included in the offering.

Form S-3 Registration Rights

After this offering, the holders of an aggregate of 101,333,330 shares of our common stock will be entitled to certain Form S-3 registration rights. Any holder of these shares can make a request that we register their shares on Form S-3 if we are qualified to file a registration statement on Form S-3 and if the reasonably anticipated aggregate net proceeds of the shares offered would equal or exceed $1.0 million. We will not be required to effect more than two registrations on Form S-3 within any 12-month period.

Indemnification

The Rights Agreement contains customary cross indemnification provisions, under which we are obligated to indemnify holders of registrable securities in the event of material misstatements or

omissions in a registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions attributable to them.

Expenses

Generally, other than underwriting discounts and commissions, we will be required to pay all expenses incurred by us related to any registration effected pursuant to the exercise of these registration rights. These expenses may include all registration and filing fees, printing and accounting fees, fees and disbursements of our counsel, reasonable fees and disbursements of a counsel for the selling securityholders.

Anti-Takeover Provisions

The provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws, which are summarized below, may have the effect of delaying, deferring or discouraging another person from acquiring control of our company. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Certificate of Incorporation and Bylaws to be in Effect on the Closing of this Offering

Because our stockholders do not have cumulative voting rights, stockholders holding a majority of the voting power of our shares of common stock will be able to elect all of our directors. Our amended and restated certificate of incorporation and amended and restated bylaws to be effective on the closing of this offering will provide for stockholder actions at a duly called meeting of stockholders or, before the date on which all shares of common stock convert into a single class, by written consent. A special meeting of stockholders may be called by a majority of our board of directors, the chair of our board of directors, or our chief executive officer or president. Our amended and restated bylaws will establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors.

As described above in “Management—Composition of Our Board of Directors,” in accordance with our amended and restated certificate of incorporation to be filed in connection with this offering, immediately after this offering, our board of directors will be divided into three classes with staggered three-year terms.

The foregoing provisions will make it more difficult for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and may have the effect of deterring hostile takeovers or delaying changes in our control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts.

Section 203 of the Delaware General Corporation Law

When we have a class of voting stock that is either listed on a national securities exchange or held of record by more than 2,000 stockholders, we will be subject to Section 203 of the Delaware General Corporation Law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, subject to certain exceptions.

Choice of Forum

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on our behalf; (ii) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers or other employees to us or our stockholders; (iii) any action or proceeding asserting a claim against us or any of our current or former directors, officers or other employees, arising out of or pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our bylaws; (iv) any action or proceeding to interpret, apply, enforce or determine the validity of our certificate of incorporation or our bylaws; (v) any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and (vi) any action asserting a claim against us or any of our directors, officers or other employees governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants; provided these provisions of our amended and restated certificate of incorporation and amended and restated bylaws will apply to suits brought to enforce a duty or liability created by the Securities Act of 1933, as amended, but stockholders will not be deemed to have waived our compliance with the federal securities laws and the regulations thereunder; and provided these provisions of our amended and restated certificate of incorporation and amended and restated bylaws will not apply to suits brought to enforce a duty or liability created by the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction.

While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions, and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. We note that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder.

Limitations on Liability and Indemnification

See "Executive Compensation—Limitations on Liability and Indemnification."

Exchange Listing

Our common stock is currently not listed on any securities exchange. We have applied to list our common stock on the Nasdaq Global Market under the symbol "SPRB."

Transfer Agent and Registrar

On the closing of this offering, the transfer agent and registrar for our common stock will be Computershare Trust Company, N.A. The transfer agent and registrar's address is 250 Royal Street, Canton, Massachusetts 02021.

SHARES ELIGIBLE FOR FUTURE SALE

Before the closing of this offering, there has been no public market for our common stock. Future sales of substantial amounts of our common stock, including shares issued on the exercise of outstanding options, in the public market after this offering, or the possibility of these sales or issuances occurring, could adversely affect the prevailing market price for our common stock or impair our ability to raise equity capital.

Based on our shares outstanding as of June 30, 2020, upon the closing of this offering, a total of shares of common stock will be outstanding, after giving effect to the issuance and sale of 36,666,665 shares of our Series B redeemable convertible preferred stock in August 2020 and assuming the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into 101,333,330 shares of our common stock in connection with the closing of this offering. Of these shares, all of the common stock sold in this offering by us, plus any shares sold by us on exercise of the underwriters' option to purchase additional common stock, will be freely tradable in the public market without restriction or further registration under the Securities Act, unless these shares are held by "affiliates," as that term is defined in Rule 144 under the Securities Act.

The remaining shares of common stock will be, and shares of common stock subject to stock options will be on issuance, "restricted securities," as that term is defined in Rule 144 under the Securities Act. These restricted securities are eligible for public sale only if they are registered under the Securities Act or if they qualify for an exemption from registration under Rules 144 or 701 under the Securities Act, which are summarized below. Restricted securities may also be sold outside of the United States to non-U.S. persons in accordance with Rule 904 of Regulation S.

Subject to the lock-up agreements described below and the provisions of Rule 144 or Regulation S under the Securities Act, as well as our insider trading policy, these restricted securities will be available for sale in the public market after the date of this prospectus.

Rule 144

In general, under Rule 144 as currently in effect, once we have been subject to public company reporting requirements of Section 13 or Section 15(d) of the Exchange Act for at least 90 days, an eligible stockholder is entitled to sell such shares without complying with the manner of sale, volume limitation, or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. To be an eligible stockholder under Rule 144, such stockholder must not be deemed to have been one of our affiliates for purposes of the Securities Act at any time during the 90 days preceding a sale and must have beneficially owned the shares proposed to be sold for at least six months, including the holding period of any prior owner other than our affiliates. If such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then such person is entitled to sell such shares without complying with any of the requirements of Rule 144, subject to the expiration of the lock-up agreements described below.

In general, under Rule 144, as currently in effect, our affiliates or persons selling shares on behalf of our affiliates are entitled to sell shares on expiration of the lock-up agreements described below. Beginning 90 days after the date of this prospectus, within any three-month period, such stockholders may sell a number of shares that does not exceed the greater of:

- 1% of the number of shares of common stock then outstanding, which will equal approximately shares immediately after this offering, assuming no exercise of the underwriters' option to purchase additional shares of common stock from us; or

- the average weekly trading volume of our common stock on the Nasdaq Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

Sales under Rule 144 by our affiliates or persons selling shares on behalf of our affiliates are also subject to certain manner of sale provisions and notice requirements and to the availability of current public information about us.

Rule 701

Rule 701 generally allows a stockholder who was issued shares under a written compensatory plan or contract and who is not deemed to have been an affiliate of our company during the immediately preceding 90 days, to sell these shares in reliance on Rule 144, but without being required to comply with the public information, holding period, volume limitation, or notice provisions of Rule 144. Rule 701 also permits affiliates of our company to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. All holders of Rule 701 shares, however, are required by that rule to wait until 90 days after the date of this prospectus before selling those shares under Rule 701, subject to the expiration of the lock-up agreements described below.

Form S-8 Registration Statements

We intend to file one or more registration statements on Form S-8 under the Securities Act with the SEC to register the offer and sale of shares of our common stock that are issuable under our 2016 Plan, 2020 Plan and ESPP. These registration statements will become effective immediately on filing. Shares covered by these registration statements will then be eligible for sale in the public markets, subject to vesting restrictions, any applicable lock-up agreements described below, and Rule 144 limitations applicable to affiliates.

Lock-up Arrangements

We, and all of our directors, executive officers and the holders of substantially all of our common stock and securities exercisable for or convertible into our common stock outstanding immediately on the closing of this offering, have agreed with the underwriters that, until 180 days after the date of the underwriting agreement related to this offering, we and they will not, without the prior written consent of the representatives to the underwriters, directly or indirectly, offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase or otherwise transfer or dispose of any of our shares of common stock, or any securities convertible into or exercisable or exchangeable for shares of our common stock, or enter into any swap or any other agreement or any transaction that transfers, in whole or in part, directly or indirectly, the economic consequence of ownership of the securities, whether any such swap or transaction is to be settled by delivery of our common stock or other securities, in cash or otherwise. These agreements are described in “Underwriting—Lock-Up Agreements.” The representatives to the underwriters may, in their sole discretion, release any of the securities subject to these lock-up agreements at any time.

Registration Rights

Upon the closing of this offering, pursuant to our amended and restated investors’ rights agreement, the holders of 101,333,330 shares of our common stock, or their transferees, will be entitled to certain rights with respect to the registration of the offer and sale of their shares under the Securities Act, subject to the terms of the lock-up agreements described under “—Lock-up Arrangements” above. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act immediately on the effectiveness of the registration. Substantial sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock. See “Description of Capital Stock—Registration Rights” for additional information.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following is a summary of the material U.S. federal income tax consequences to non-U.S. holders (as defined below) of the purchase, ownership and disposition of our common stock issued pursuant to this offering. This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating thereto, does not address the potential application of the Medicare contribution tax on net investment income, and does not address any estate or gift tax consequences or any tax consequences arising under any state, local or foreign tax laws, or any other U.S. federal tax laws. This discussion is based on the Internal Revenue Code of 1986, as amended, or the Code, Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the Internal Revenue Service, or the IRS, all as in effect on the date of this prospectus. These authorities are subject to differing interpretations and may change, possibly retroactively, resulting in U.S. federal income tax consequences different from those discussed below. We have not requested a ruling from the IRS with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court will agree with such statements and conclusions.

This discussion is limited to non-U.S. holders who purchase our common stock pursuant to this offering and who hold our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all of the U.S. federal income tax consequences that may be relevant to an individual holder in light of such holder's particular circumstances. This discussion also does not consider any specific facts or circumstances that may be relevant to holders subject to special rules under the U.S. federal income tax laws, including:

- certain former citizens or long-term residents of the United States;
- partnerships or other pass-through entities (and investors therein);
- "controlled foreign corporations";
- "passive foreign investment companies";
- corporations that accumulate earnings to avoid U.S. federal income tax;
- banks, financial institutions, investment funds, insurance companies, brokers, dealers or traders in securities;
- tax-exempt organizations and governmental organizations;
- tax-qualified retirement plans;
- persons subject to the alternative minimum tax;
- persons subject to special tax accounting rules under Section 451(b) of the Code;
- persons that own or have owned, actually or constructively, more than 5% of our common stock;
- persons who have elected to mark securities to market; and
- persons holding our common stock as part of a hedging or conversion transaction or straddle, or a constructive sale, or other risk reduction strategy or integrated investment.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds our common stock, the U.S. federal income tax treatment of a partner in the partnership will generally depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Partnerships holding our common stock and the partners in such partnerships are urged to consult their tax advisors about the particular U.S. federal income tax consequences to them of holding and disposing of our common stock.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE

PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING, OWNING AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL OR FOREIGN TAX LAWS AND ANY OTHER U.S. FEDERAL TAX LAWS.

Definition of Non-U.S. Holder

For purposes of this discussion, a non-U.S. holder is any beneficial owner of our common stock that is not a "U.S. person" or a partnership (including any entity or arrangement treated as a partnership) for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation created or organized under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust (1) whose administration is subject to the primary supervision of a U.S. court and which has one or more U.S. persons who have the authority to control all substantial decisions of the trust or (2) that has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

Distributions on Our Common Stock

As described under "Dividend Policy," we do not anticipate declaring or paying, in the foreseeable future, any cash dividends on our capital stock. However, if we do distribute cash or other property on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and will first be applied against and reduce a holder's tax basis in our common stock, but not below zero. Any excess will be treated as gain realized on the sale or other disposition of our common stock and will be treated as described under "—Gain on Disposition of Our Common Stock" below.

Subject to the discussions below regarding effectively connected income, backup withholding and FATCA (as defined below), dividends paid to a non-U.S. holder of our common stock generally will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends or such lower rate specified by an applicable income tax treaty. To receive the benefit of a reduced treaty rate, a non-U.S. holder must furnish us or our withholding agent with a valid IRS Form W-8BEN or IRS Form W-8BEN-E (or applicable successor form) certifying such holder's qualification for the reduced rate. This certification must be provided to us or our withholding agent before the payment of dividends and must be updated periodically. If the non-U.S. holder holds our common stock through a financial institution or other agent acting on the non-U.S. holder's behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent, which then will be required to provide certification to us or our withholding agent, either directly or through other intermediaries.

If a non-U.S. holder holds our common stock in connection with the conduct of a trade or business in the United States, and dividends paid on our common stock are effectively connected with such holder's U.S. trade or business (and are attributable to such holder's permanent establishment or fixed base in the United States if required by an applicable tax treaty), the non-U.S. holder will be exempt from U.S. federal withholding tax. To claim the exemption, the non-U.S. holder must generally furnish a valid IRS Form W-8ECI (or applicable successor form) to the applicable withholding agent.

However, any such effectively connected dividends paid on our common stock generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in

the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items.

Non-U.S. holders that do not provide the required certification on a timely basis, but that qualify for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Gain on Disposition of Our Common Stock

Subject to the discussions below regarding backup withholding and FATCA, a non-U.S. holder generally will not be subject to U.S. federal income tax on any gain realized on the sale or other disposition of our common stock, unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States and, if required by an applicable income tax treaty, is attributable to a permanent establishment or fixed base maintained by the non-U.S. holder in the United States;
- the non-U.S. holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition, and certain other requirements are met; or
- our common stock constitutes a "United States real property interest" by reason of our status as a United States real property holding corporation, or a USRPHC, for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding the disposition or the non-U.S. holder's holding period for our common stock, and our common stock is not considered regularly traded on an established securities market at the time of the sale or other disposition.

Determining whether we are a USRPHC depends on the fair market value of our U.S. real property interests relative to the fair market value of our other trade or business assets and our foreign real property interests. We believe that we are not currently and we do not anticipate becoming a USRPHC for U.S. federal income tax purposes, although there can be no assurance we will not in the future become a USRPHC.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. Gain described in the second bullet point above will be subject to U.S. federal income tax at a flat 30% rate (or such lower rate specified by an applicable income tax treaty), but may be offset by certain U.S.-source capital losses (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses. Gain described in the third bullet point above will generally be subject to U.S. federal income tax in the same manner as gain that is effectively connected with the conduct of a U.S. trade or business, except that the branch profits tax generally will not apply.

Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Information Reporting and Backup Withholding

Annual reports are required to be filed with the IRS and provided to each non-U.S. holder indicating the amount of distributions on our common stock paid to such holder and the amount of any

tax withheld with respect to those distributions. These information reporting requirements apply even if no withholding was required because the distributions were effectively connected with the holder's conduct of a U.S. trade or business, or withholding was reduced or eliminated by an applicable income tax treaty. This information also may be made available under a specific treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established. Backup withholding, currently at a 24% rate, generally will not apply to payments to a non-U.S. holder of dividends on or the gross proceeds of a disposition of our common stock provided the non-U.S. holder furnishes the required certification for its non-U.S. status, such as by providing a valid IRS Form W-8BEN, IRS Form W-8BEN-E or IRS Form W-8ECI, or certain other requirements are met, and if the payor does not have actual knowledge, or reason to know, that the holder is a U.S. person.

Backup withholding is not an additional tax. If any amount is withheld under the backup withholding rules, the non-U.S. holder should consult with a U.S. tax advisor regarding the possibility of and procedure for obtaining a refund or a credit against the non-U.S. holder's U.S. federal income tax liability, if any.

Withholding on Foreign Entities

Sections 1471 through 1474 of the Code, which are commonly referred to as FATCA, impose a U.S. federal withholding tax of 30% on certain payments made to a "foreign financial institution" (as specially defined under these rules) unless such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities certain information regarding certain U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or an exemption applies. FATCA also generally will impose a U.S. federal withholding tax of 30% on certain payments made to a non-financial foreign entity unless such entity provides the withholding agent a certification identifying certain direct and indirect U.S. owners of the entity or an exemption applies. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. FATCA currently applies to dividends paid on our common stock and would have applied also to payments of gross proceeds from the sale or other disposition of our common stock. The U.S. Treasury Department has released proposed regulations under FATCA providing for the elimination of the federal withholding tax of 30% applicable to gross proceeds of a sale or other disposition of our common stock. Under these proposed Treasury Regulations (which may be relied upon by taxpayers prior to finalization), FATCA will not apply to gross proceeds from sales or other dispositions of our common stock.

Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in our common stock.

UNDERWRITING

We and the underwriters for the offering named below have entered into an underwriting agreement with respect to the common stock being offered. Subject to the terms and conditions of the underwriting agreement, each underwriter has severally agreed to purchase from us the number of shares of our common stock set forth opposite its name below. Cowen and Company, LLC, SVB Leerink LLC, Credit Suisse Securities (USA) LLC and RBC Capital Markets, LLC are the representatives of the underwriters.

Underwriter	Number of Shares
Cowen and Company, LLC	
SVB Leerink LLC	
Credit Suisse Securities (USA) LLC	
RBC Capital Markets, LLC	
Total	

The underwriting agreement provides that the obligations of the underwriters are subject to certain conditions precedent and that the underwriters have agreed, severally and not jointly, to purchase all of the shares sold under the underwriting agreement if any of these shares are purchased, other than those shares covered by the option to purchase additional shares described below. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the non-defaulting underwriters may be increased or the underwriting agreement may be terminated.

We have agreed to indemnify the underwriters against specified liabilities, including liabilities under the Securities Act, and to contribute to payments the underwriters may be required to make in respect thereof.

The underwriters are offering the shares, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel and other conditions specified in the underwriting agreement. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Option to Purchase Additional Shares. We have granted to the underwriters an option to purchase up to additional shares of common stock at the public offering price, less the underwriting discounts and commissions. This option is exercisable for a period of 30 days. The underwriters may exercise this option solely for the purpose of covering overallotments, if any, made in connection with the sale of common stock offered hereby. To the extent that the underwriters exercise this option, the underwriters will purchase additional shares from us in approximately the same proportion as shown in the table above.

Discounts and Commissions. The following table shows the public offering price, underwriting discounts and commissions and proceeds, before expenses, to us. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

We estimate that the total expenses of the offering, excluding underwriting discounts and commissions, will be approximately $ and are payable by us. We have agreed to reimburse the underwriters for up to $ for their FINRA counsel fee. In accordance with FINRA Rule 5110, this reimbursed fee is deemed underwriting compensation for this offering.

		Total	
	Per Share	No Exercise	Full Exercise
Public offering price			
Underwriting discounts and commissions			
Proceeds, before expenses, to us			

The underwriters propose to offer the shares of common stock to the public at the public offering price set forth on the cover of this prospectus. The underwriters may offer the shares of common stock to securities dealers at the public offering price less a concession not in excess of $ per share. If all of the shares are not sold at the public offering price, the underwriters may change the offering price and other selling terms.

Discretionary Accounts. The underwriters do not intend to confirm sales of the shares to any accounts over which they have discretionary authority.

Market Information. Prior to this offering, there has been no public market for shares of our common stock. The initial public offering price will be determined by negotiations between us and the representatives of the underwriters. In addition to prevailing market conditions, the factors to be considered in these negotiations will include:

- the history of, and prospects for, our company and the industry in which we compete;
- our past and present financial information;
- an assessment of our management; its past and present operations, and the prospects for, and timing of, our future revenues;
- the present state of our development; and
- the above factors in relation to market values and various valuation measures of other companies engaged in activities similar to ours.

An active trading market for the shares may not develop. It is also possible that after the offering the shares will not trade in the public market at or above the initial public offering price.

We have applied to list our common stock on the Nasdaq Global Market under the symbol “SPRB.”

Stabilization. In connection with this offering, the underwriters may engage in stabilizing transactions, overallotment transactions, syndicate covering transactions, penalty bids and purchases to cover positions created by short sales.

- Stabilizing transactions permit bids to purchase shares of common stock so long as the stabilizing bids do not exceed a specified maximum, and are engaged in for the purpose of preventing or slowing down a decline in the market price of the common stock while the offering is in progress.
- Overallotment transactions involve sales by the underwriters of shares of common stock in excess of the number of shares the underwriters are obligated to purchase. This creates a syndicate short position which may be either a covered short position or a naked short position. In a covered short position, the number of shares over-allotted by the underwriters is not greater than the number of shares that they may purchase in the overallotment option. In a

naked short position, the number of shares involved is greater than the number of shares in the overallotment option. The underwriters may close out any short position by exercising their overallotment option and/or purchasing shares in the open market.

- Syndicate covering transactions involve purchases of common stock in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of shares to close out the short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared with the price at which they may purchase shares through exercise of the overallotment option. If the underwriters sell more shares than could be covered by exercise of the overallotment option and, therefore, have a naked short position, the position can be closed out only by buying shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that after pricing there could be downward pressure on the price of the shares in the open market that could adversely affect investors who purchase in the offering.
- Penalty bids permit the representatives to reclaim a selling concession from a syndicate member when the common stock originally sold by that syndicate member is purchased in stabilizing or syndicate covering transactions to cover syndicate short positions.

These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of our common stock or preventing or slowing down a decline in the market price of our common stock. As a result, the price of our common stock in the open market may be higher than it would otherwise be in the absence of these transactions. Neither we nor the underwriters make any representation or prediction as to the effect that the transactions described above may have on the price of our common stock. These transactions may be effected on the Nasdaq Stock Market, in the over-the-counter market or otherwise and, if commenced, may be discontinued at any time.

Lock-Up Agreements. Pursuant to certain “lock-up” agreements, we and our executive officers, directors and our other securityholders have agreed, subject to certain exceptions, not to, and not to cause or direct any of its affiliates to, offer, sell, assign, transfer, pledge, contract to sell, lend or otherwise dispose of or announce the intention to otherwise dispose of, or enter into, or announce the intention to enter into any swap, hedge or similar agreement or arrangement (including, without limitation, the purchase or sale of, or entry into, any put or call option, or combination thereof, forward, swap or any other derivative transaction or instrument, however described or defined) that transfers, is designed to transfer or reasonably could be expected to transfer (whether by the securityholder or someone other than the securityholder), in whole or in part, directly or indirectly the economic risk of ownership of, or engage in, or announce the intention to engage in, any short selling of, or make any demand or request or exercise any right with respect to the registration of, or file with the SEC a registration statement under the Securities Act relating to, any common stock or securities convertible into or exchangeable or exercisable for any common stock without the prior written consent of the representatives, for a period of 180 days after the date of the pricing of the offering.

This lock-up provision applies to common stock and to securities convertible into or exchangeable or exercisable for common stock. It also applies to common stock owned now or acquired later by the person executing the agreement or for which the person executing the agreement later acquires the power of disposition. The exceptions permit parties to the “lock-up” agreements, among other things and subject to restrictions, to: (a) make certain gifts, (b) if the party is a corporation, partnership, limited liability company or other business entity, make transfers to any shareholders, partners, members of, or owners of similar equity interests in, the party, or to an affiliate of the party, if such transfer is not for value, (c) if the party is a corporation, partnership, limited liability company or other business entity, make transfers in connection with the sale or transfer of all of the party’s capital stock, partnership interests, membership interests or other similar equity interests, as the case may be, or all or

substantially all of the party's assets, in any such case not undertaken for the purpose of avoiding the restrictions imposed by the "lock-up" agreement, (d) make certain transactions related to securities acquired in this offering or open market transactions after the completion of the offering, (e) enter into a trading plan which meets the requirements of Rule 10b5-1(c) under the Exchange Act, (f) make transfers relating to the exercise, vesting, or settlement of options, warrants or other rights to acquire shares of our common stock (including, in each case, by way of net exercise or to satisfy tax withholding obligations), (g) participate in tenders involving the acquisition of a majority of our stock, (h) convert outstanding preferred stock into common stock, (i) make transfers by operation of law pursuant to a court order or a settlement agreement related to the distribution of assets in connection with the dissolution of a marriage or civil union, and (j) make transfers in connection with the termination of a party's employment with us or pursuant to an agreement under which we have the option to repurchase shares. In addition, the lock-up provision will not restrict broker-dealers from engaging in market making and similar activities conducted in the ordinary course of their business. The representatives, in their sole discretion, may release our common stock and other securities subject to the lock-up agreements described above in whole or in part at any time. When determining whether or not to release our common stock and other securities from lock-up agreements, the representatives will consider, among other factors, the holder's reasons for requesting the release, the number of shares for which the release is being requested and market conditions at the time of the request. In the event of such a release or waiver for one of our directors or officers, the representatives shall provide us with notice of the impending release or waiver at least three business days before the effective date of such release or waiver and we will announce the impending release or waiver by issuing a press release at least two business days before the effective date of the release or waiver.

Selling Restrictions

Canada. The common stock may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 *Prospectus Exemptions* or subsection 73.3(1) of the *Securities Act* (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*. Any resale of the common stock must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 *Underwriting Conflicts* (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Switzerland. This prospectus is not intended to constitute an offer or solicitation to purchase or invest in the shares. The shares may not be publicly offered, directly or indirectly, in Switzerland within the meaning of the Swiss Financial Services Act, or FinSA, and no application has or will be made to admit the shares to trading on any trading venue (exchange or multilateral trading facility) in Switzerland. Neither this prospectus nor any other offering or marketing material relating to the shares constitutes a prospectus pursuant to the FinSA, and neither this prospectus nor any other offering or marketing material relating to the shares may be publicly distributed or otherwise made publicly available in Switzerland.

European Economic Area and the UK. In relation to each Member State of the European Economic Area and the UK, each, a Member State, no shares have been offered or will be offered pursuant to the offering to the public in that Member State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Member State or, where appropriate, approved in another Member State and notified to the competent authority in that Member State, all in accordance with the Prospectus Regulation, except that offers of shares may be made to the public in that Member State at any time under the following exemptions under the Prospectus Regulation:

A. to any legal entity which is a qualified investor as defined under the Prospectus Regulation;

B. to fewer than 150 natural or legal persons (other than qualified investors as defined under the Prospectus Regulation), subject to obtaining the prior consent of the underwriters; or

C. in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of shares shall require the Company or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation and each person who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with each of the underwriters and the Company that it is a "qualified investor" within the meaning of Article 2(e) of the Prospectus Regulation.

In the case of any shares being offered to a financial intermediary as that term is used in Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any shares to the public other than their offer or resale in a Member State to qualified investors as so defined or in circumstances in which the prior consent of the underwriters have been obtained to each such proposed offer or resale.

For the purposes of this provision, the expression an "offer to the public" in relation to shares in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

References to the Prospectus Regulation includes, in relation to the UK, the Prospectus Regulation as it forms part of the UK domestic law by virtue of the European Union (Withdrawal) Act of 2018.

UK. In addition, in the UK, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at persons who are "qualified investors" (as defined in the Prospectus Regulation) (i) who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or the Order, and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order and/or (iii) to whom it may otherwise be lawfully communicated (all such persons together being referred to as "relevant persons") in circumstances which have not resulted and will not result in an offer to the public of the shares in the UK within the meaning of the Financial Services and Markets Act 2000.

Any person in the UK that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the UK, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons.

Hong Kong. The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong), or the SFO, of Hong Kong and any rules made thereunder; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong, or the CO, or which do not constitute an offer to the public within the meaning of the CO. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made thereunder.

Singapore. Each underwriter has acknowledged that this prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each underwriter has represented and agreed that it has not offered or sold any shares or caused the shares to be made the subject of an invitation for subscription or purchase and will not offer or sell any shares or cause the shares to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this prospectus or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares, whether directly or indirectly, to any person in Singapore other than:

A. to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, as modified or amended from time to time, or the SFA) pursuant to Section 274 of the SFA;

B. to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA; or

C. otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

A. a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

B. a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries' rights and interest (however described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

(i) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

(ii) where no consideration is or will be given for the transfer;

(iii) where the transfer is by operation of law;

(iv) as specified in Section 276(7) of the SFA; or

(v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Singapore SFA Product Classification—In connection with Section 309B of the SFA and the CMP Regulations 2018, unless otherwise specified before an offer of shares, we have determined, and hereby notify all relevant persons (as defined in Section 309A(1) of the SFA), that the shares are "prescribed capital markets products" (as defined in the CMP Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Israel. In the State of Israel this prospectus shall not be regarded as an offer to the public to purchase shares of common stock under the Israeli Securities Law, 5728—1968, which requires a prospectus to be published and authorized by the Israel Securities Authority, if it complies with certain provisions of Section 15 of the Israeli Securities Law, 5728—1968, including, inter alia, if: (i) the offer is made, distributed or directed to not more than 35 investors, subject to certain conditions, or the Accredited Investors; or (ii) the offer is made, distributed or directed to certain qualified investors defined in the First Addendum of the Israeli Securities Law, 5728—1968, subject to certain conditions, or the Qualified Investors. The Qualified Investors shall not be taken into account in the count of the Addressed Investors and may be offered to purchase securities in addition to the 35 Addressed Investors. The company has not and will not take any action that would require it to publish a prospectus in accordance with and subject to the Israeli Securities Law, 5728—1968. We have not and will not distribute this prospectus or make, distribute or direct an offer to subscribe for our common stock to any person within the State of Israel, other than to Qualified Investors and up to 35 Addressed Investors.

Qualified Investors may have to submit written evidence that they meet the definitions set out in of the First Addendum to the Israeli Securities Law, 5728—1968. In particular, we may request, as a condition to be offered common stock, that Qualified Investors will each represent, warrant and certify to us and/or to anyone acting on our behalf: (i) that it is an investor falling within one of the categories listed in the First Addendum to the Israeli Securities Law, 5728—1968; (ii) which of the categories listed in the First Addendum to the Israeli Securities Law, 5728—1968 regarding Qualified Investors is applicable to it; (iii) that it will abide by all provisions set forth in the Israeli Securities Law, 5728—1968 and the regulations promulgated thereunder in connection with the offer to be issued common stock; (iv) that the shares of common stock that it will be issued are, subject to exemptions available under the Israeli Securities Law, 5728—1968: (a) for its own account; (b) for investment purposes only; and (c) not issued with a view to resale within the State of Israel, other than in accordance with the provisions of the Israeli Securities Law, 5728—1968; and (v) that it is willing to provide further evidence of its Qualified Investor status. Addressed Investors may have to submit written evidence in respect of their identity and may have to sign and submit a declaration containing, inter alia, the Addressed Investor's name, address and passport number or Israeli identification number.

We have not authorized and do not authorize the making of any offer of securities through any financial intermediary on our behalf, other than offers made by the underwriters and their respective affiliates, with a view to the final placement of the securities as contemplated in this document. Accordingly, no purchaser of the shares, other than the underwriters, is authorized to make any further offer of shares on our behalf or on behalf of the underwriters.

Electronic Offer, Sale and Distribution of Shares. A prospectus in electronic format may be made available on the websites maintained by one or more of the underwriters or selling group members, if any, participating in this offering and one or more of the underwriters participating in this offering may distribute prospectuses electronically. The representatives may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the underwriters and selling group members that will make internet distributions on the same basis as other allocations. Other than the prospectus in electronic format, the information on these websites is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or any underwriter in its capacity as underwriter, and should not be relied upon by investors.

Other Relationships. Certain of the underwriters and their affiliates have provided, and may in the future provide, various investment banking, commercial banking and other financial services for us and our affiliates for which they have received, and may in the future receive, customary fees.

LEGAL MATTERS

Cooley LLP, San Francisco, California, which has acted as our counsel in connection with this offering, will pass on certain legal matters with respect to U.S. federal law in connection with this offering. Latham & Watkins LLP has acted as counsel to the underwriters in connection with this offering.

EXPERTS

The financial statements as of December 31, 2018 and 2019 and for each of the two years in the period ended December 31, 2019, included in this prospectus and in the registration statement have been so included in reliance on the report of BDO USA, LLP, an independent registered public accounting firm appearing elsewhere herein and in the registration statement, given on the authority of said firm as experts in auditing and accounting.

CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

On June 26, 2020, we dismissed Ernst & Young LLP, or EY, as our independent auditor. This dismissal was approved by the audit committee of our board of directors.

EY audited our financial statements for the fiscal years ended December 31, 2018 and 2019, which were issued under auditing standards generally accepted in the United States. The audit report issued by EY on June 8, 2020, did not contain an adverse opinion or a disclaimer of opinion and was not qualified or modified as to audit scope or accounting principles, but was modified as to a going concern uncertainty. EY did not provide an audit opinion on our financial statements for any period subsequent to the fiscal year ended December 31, 2019.

During the years ended December 31, 2018 and 2019 and the subsequent interim period through June 26, 2020, (i) there were no “disagreements” between us and EY (as that term is defined in Item 304(a)(1)(iv) of Regulation S-K) on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of EY, would have caused them to make reference to the subject matter of the disagreements in connection with their report on the financial statements for such period, and (ii) there were no “reportable events” as such term is defined in Item 304(a)(1)(v) of Regulation S-K.

We provided EY with a copy of the foregoing disclosures and requested EY to furnish us with a letter addressed to the SEC stating whether or not EY agrees with the above disclosures. A copy of EY’s letter is filed as Exhibit 16.1 to the registration statement of which this prospectus is a part.

On July 3, 2020, we engaged BDO USA, LLP, or BDO, as our independent registered public accounting firm, which engagement has been ratified by the audit committee of our board of directors. During the fiscal years ended December 31, 2018 and 2019 and the subsequent interim period through June 30, 2020, we (or any person on our behalf) did not consult with BDO regarding any of the matters described in Items 304(a)(2)(i) or 304(a)(2)(ii) of Regulation S-K.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of common stock offered by this prospectus. This prospectus, which constitutes a

part of the registration statement, does not contain all the information set forth in the registration statement, some of which is contained in exhibits to the registration statement as permitted by the rules and regulations of the SEC. For further information with respect to us and our common stock, we refer you to the registration statement, including the exhibits filed as a part of the registration statement. Statements contained in this prospectus concerning the contents of any contract or any other document are not necessarily complete. If a contract or document has been filed as an exhibit to the registration statement, please see the copy of the contract or document that has been filed. Each statement in this prospectus relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. The SEC also maintains an internet website that contains reports and other information about issuers, like us, that file electronically with the SEC. The address of that website is www.sec.gov.

On the closing of this offering, we will be subject to the information reporting requirements of the Exchange Act, and we will file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available for inspection and copying at the public reference room and website of the SEC referred to above.

We also maintain a website at www.sprucebiosciences.com. Information contained in, or accessible through, our website is not a part of this prospectus, and the inclusion of our website address in this prospectus is only as an inactive textual reference.

SPRUCE BIOSCIENCES, INC.

INDEX TO FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Spruce Biosciences, Inc.
Daly City, California

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Spruce Biosciences, Inc. (the "Company") as of December 31, 2018 and 2019, and the related statements of operations, redeemable convertible preferred stock and stockholders' deficit, and cash flows for the years then ended, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2019, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and in accordance with standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ BDO USA, LLP

August 7, 2020

We have served as the Company's auditor since 2020.

San Jose, California

SPRUCE BIOSCIENCES, INC.
BALANCE SHEETS
(in thousands, except share and per share amounts)

	December 31, 2018	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 4,112	$ 3,924
Prepaid expenses	411	215
Other current assets	250	513
Total current assets	4,773	4,652
Other assets	2	40
Total assets	$ 4,775	$ 4,692
LIABILITIES, REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT		
Current liabilities:		
Accounts payable	$ 2,300	$ 1,878
Term loan, current portion	–	1,252
Accrued expenses	69	265
Accrued compensation and benefits	336	908
Total current liabilities	2,705	4,303
Term loan, net of current portion	–	3,193
Other liabilities	–	20
Total liabilities	2,705	7,516
Commitments and contingencies (Note 9)		
Series A redeemable convertible preferred stock, $0.0001 par value; 20,500,000 and 28,000,000 shares authorized as of December 31, 2018 and 2019, respectively; 20,000,000 and 28,000,000 shares issued and outstanding as of December 31, 2018 and 2019, respectively; liquidation preference of $20,000 and $28,000 as of December 31, 2018 and 2019, respectively	19,872	27,813
Stockholders' deficit:		
Common stock, $0.0001 par value; 33,000,000 and 41,000,000 shares authorized as of December 31, 2018 and 2019, respectively; 5,000,000 shares issued and outstanding as of December 31, 2018 and 2019	1	1
Additional paid-in capital	411	664
Accumulated deficit	(18,214)	(31,302)
Total stockholders' deficit	(17,802)	(30,637)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 4,775	$ 4,692

See accompanying notes to the financial statements.

SPRUCE BIOSCIENCES, INC.
STATEMENTS OF OPERATIONS
(in thousands, except share and per share amounts)

	Year Ended December 31,	
	2018	2019
Operating expenses:		
Research and development	$ 8,403	$ 10,817
General and administrative	1,569	2,290
Total operating expenses	9,972	13,107
Loss from operations	(9,972)	(13,107)
Interest expense	–	(65)
Other income, net	114	84
Net loss	$ (9,858)	$ (13,088)
Net loss per share, basic and diluted	$ (2.01)	$ (2.62)
Weighted-average shares of common stock outstanding, basic and diluted	4,912,955	5,000,000
Pro forma net loss per share, basic and diluted (unaudited)		$ (0.41)
Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited)		32,013,699

See accompanying notes to the financial statements.

SPRUCE BIOSCIENCES, INC.
STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(in thousands, except share amounts)

	Series A Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balance as of January 1, 2018	20,000,000	$19,872	4,479,163	$ 1	$ 310	$ (8,356)	$ (8,045)
Vesting of founder shares	–	–	520,837	–	–	–	–
Stock-based compensation	–	–	–	–	101	–	101
Net loss	–	–	–	–	–	(9,858)	(9,858)
Balance as of December 31, 2018	20,000,000	$19,872	5,000,000	$ 1	$ 411	$ (18,214)	$ (17,802)
Issuance of Series A redeemable convertible preferred stock, net of issuance costs of $60	8,000,000	7,941	–	–	–	–	–
Stock-based compensation	–	–	–	–	196	–	196
Issuance of warrant to purchase common stock	–	–	–	–	57	–	57
Net loss	–	–	–	–	–	(13,088)	(13,088)
Balance as of December 31, 2019	28,000,000	$27,813	5,000,000	$ 1	$ 664	$ (31,302)	$ (30,637)

See accompanying notes to the financial statements.

SPRUCE BIOSCIENCES, INC.
STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31, 2018	2019
Cash flows from operating activities		
Net loss	$ (9,858)	$ (13,088)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1	12
Stock-based compensation	101	196
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(659)	(67)
Accounts payable and accrued expenses	1,697	(226)
Accrued compensation and benefits	148	572
Other assets		(36)
Other liabilities	–	20
Net cash used in operating activities	(8,570)	(12,617)
Cash flows from investing activities		
Purchase of property and equipment	–	(4)
Net cash used in investing activities	–	(4)
Cash flows from financing activities		
Proceeds from issuance of Series A redeemable convertible preferred stock, net of issuance costs	–	7,941
Proceeds from issuance of term loan, net of issuance costs of $8	–	4,492
Net cash provided by financing activities	–	12,433
Net decrease in cash and cash equivalents	(8,570)	(188)
Cash and cash equivalents as of beginning of year	12,682	4,112
Cash and cash equivalents as of end of year	$ 4,112	$ 3,924
Supplemental cash flow data:		
Cash paid for interest	$ –	$ 20
Supplemental disclosure of non-cash financing activities:		
Fair value of warrant issued in connection with term loan	$ –	$ 57

See accompanying notes to the financial statements.

SPRUCE BIOSCIENCES, INC.
NOTES TO THE FINANCIAL STATEMENTS

1. Organization and Principal Activities

Description of Business

Spruce Biosciences, Inc. (the Company) is a late-stage biopharmaceutical company focused on developing and commercializing novel therapies for rare endocrine disorders with significant unmet medical need. The Company is initially developing its wholly-owned product candidate, tildacerfont, as the potential first non-steroidal therapy to offer markedly improved disease control and reduce steroid burden for adult patients suffering from classic congenital adrenal hyperplasia (CAH). The Company is located in Daly City, California and was incorporated in the state of Delaware in April 2016.

Liquidity and Capital Resources

The Company has incurred significant losses and negative cash flows from operations. During the year ended December 31, 2019, the Company incurred a net loss of $13.1 million and used $12.6 million of cash in operations. As of December 31, 2019, the Company had an accumulated deficit of $31.3 million and does not expect positive cash flows from operations in the foreseeable future. The Company has funded its operations primarily through the issuance and sale of its redeemable convertible preferred stock, and debt. As of December 31, 2019, the Company had cash and cash equivalents of $3.9 million. In February 2020, the Company issued and sold 36,666,665 shares of Series B redeemable convertible preferred stock (Series B preferred stock) for approximately $43.6 million in net proceeds. In August 2020, the Company issued and sold an additional 36,666,665 shares of Series B preferred stock for approximately $44.0 million in net proceeds.

The Company anticipates that it will need to raise substantial additional financing in the future to fund its operations. In order to meet these additional cash requirements, the Company may seek to sell additional equity or issue debt, convertible debt or other securities that may result in dilution to its stockholders. If the Company raises additional funds through the issuance of debt or convertible debt securities, these securities could have rights senior to those of its shares of redeemable convertible preferred stock and shares of common stock and could contain covenants that restrict its operations. There can be no assurance that the Company will be able to obtain additional equity or debt financing on terms acceptable to it, if at all. Debt financing, if available, would result in increased fixed payment obligations and may involve agreements that include covenants limiting or restricting the Company's ability to take specific actions such as incurring debt, making capital expenditures or declaring dividends. The Company's failure to obtain sufficient funds on acceptable terms when needed could have a material adverse effect on its business, results of operations, and financial condition.

2. Summary of Significant Accounting Policies

Basis of Presentation

The financial statements and accompanying notes have been prepared in accordance with generally accepted accounting principles in the United States (U.S. GAAP) and include all adjustments necessary for the fair presentation of the Company's financial position for the periods presented.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities and expenses as well as related disclosure of contingent assets and liabilities. Significant estimates and assumptions reflected in these financial statements include, but are not limited to, accrued research and development expenses, valuation of common stock and stock-based compensation, valuation of

warrants and income tax and uncertain tax positions. The Company bases its estimates on its historical experience and on assumptions that it believes are reasonable; however, actual results could significantly differ from those estimates.

Unaudited Pro Forma Financial Information

Immediately prior to the closing of an initial public offering (IPO) in which the valuation of the Company immediately prior to such firmly underwritten public offering is at least $100.0 million, the gross cash proceeds are at least $50.0 million and the Company's shares have been listed for trading on the New York Stock Exchange, Nasdaq Global Select Market or Nasdaq Global Market, or upon the affirmative vote of a majority of the then-outstanding shares of redeemable convertible preferred stock, all outstanding shares of redeemable convertible preferred stock will convert into common stock. Pro forma basic and diluted net loss per share has been computed to give effect to the automatic conversion of all outstanding redeemable convertible preferred stock into 28,000,000 shares of the Company's common stock. The unaudited pro forma net loss per share does not include the shares expected to be sold and related proceeds to be received from an IPO. The unaudited pro forma net loss per share for the year ended December 31, 2019 was computed using the weighted-average number of shares of common stock outstanding, including the pro forma effect of the automatic conversion of all outstanding shares of redeemable convertible preferred stock, as if such conversion had occurred at the beginning of the period, or their issuance dates, if later.

Deferred Offering Costs

The Company capitalizes within other assets certain legal, accounting and other third-party fees that are directly related to the Company's in-process equity financings, including the planned IPO, until such financings are consummated. After consummation of the equity financing, these costs are recorded as a reduction of the proceeds received as a result of the offering. Should a planned equity financing be abandoned, terminated or significantly delayed, the deferred offering costs are immediately written off to operating expenses. The Company did not defer any offering costs for either period presented in these financial statements.

Risks and Uncertainties

Any product candidates developed by the Company will require approvals from the U.S. Food and Drug Administration (FDA) or foreign regulatory agencies prior to commercial sales. There can be no assurance that the Company's current and future product candidates will meet desired efficacy and safety requirements to obtain the necessary approvals. If approval is denied or delayed, it may have a material adverse impact on the Company's business and its financial statements.

The Company is subject to a number of risks similar to other late-stage biopharmaceutical companies including, but not limited to, dependency on the clinical and commercial success of the Company's product candidate, tildacerfont, ability to obtain regulatory approval of tildacerfont, the need for substantial additional financing to achieve its goals, uncertainty of broad adoption of its approved products, if any, by physicians and consumers, significant competition and untested manufacturing capabilities, and dependence on key individuals and sole source suppliers.

The Company's business has been and could continue to be adversely affected by the evolving COVID-19 pandemic. For example, the COVID-19 pandemic has resulted in and could result in delays to the Company's clinical trials for numerous reasons including additional delays or difficulties in enrolling patients, diversion of healthcare resources away from the conduct of clinical trials, interruption or delays in the operations of the FDA or other regulatory authorities, and delays in clinical sites receiving the supplies and materials to conduct our clinical trials. At this time, the extent to which the COVID-19 pandemic impacts the Company's business will depend on future developments, which are highly uncertain and cannot be predicted.

Segment Reporting

The Company operates and manages its business as one operating segment, which is the business of designing and developing novel therapies for rare endocrine disorders. The Company's chief executive officer, who is the chief operating decision maker, reviews financial information on an aggregate basis for allocating and evaluating financial performance. All long-lived assets are maintained in the United States of America.

Cash and Cash Equivalents

The Company considers all highly liquid investments with remaining maturities at the date of purchase of three months or less to be cash equivalents. Cash equivalents consist of amounts invested in money market funds.

Concentration of Credit Risk

Financial instruments, which potentially subject the Company to significant concentration of credit risk, consist primarily of cash and cash equivalents. The Company maintains deposits in federally insured financial institutions in excess of federally insured limits. The Company is exposed to credit risk in the event of default by the financial institutions holding its cash and cash equivalents to the extent recorded in the balance sheet. The Company has not experienced any losses in such accounts and management believes that the Company is not exposed to significant credit risk due to the financial position of the depository institutions in which those deposits are held.

Leases

Leases are accounted for under Accounting Standards Codification (ASC) 840, *Leases*, and classified as operating leases. The Company's operating lease agreements include scheduled rent escalations over the lease term. Rent expense is charged ratably on a straight-line basis over the life of the lease from the date the Company obtains the legal right to use and control the leased space.

Redeemable Convertible Preferred Stock

The Company records redeemable convertible preferred stock at fair value on the dates of issuance, net of issuance costs. Upon the occurrence of certain events that are outside the Company's control, including a deemed liquidation event such as a merger, acquisition and sale of all or substantially all of the Company's assets, holders of the redeemable convertible preferred stock can cause redemption for cash. Therefore, redeemable convertible preferred stock is classified as temporary equity (mezzanine) on the balance sheet as events triggering the liquidation preferences are not solely within the Company's control. The carrying values of the redeemable convertible preferred stock are adjusted to their liquidation preferences if and when it becomes probable that such a liquidation event will occur.

Research and Development Expenses

Research and development costs are expensed as incurred. Research and development expenses include personnel costs related to research and development activities, materials costs, external clinical drug product, manufacturing costs, outside services costs, repair, maintenance and depreciation costs for research and development equipment, as well as facility costs for laboratory space used for research and development activities. Assets acquired that are utilized in research and development that have no alternative future use are also expensed as incurred.

Accrued Research and Development Expenses

Clinical trial costs are charged to research and development expense as incurred. The Company accrues for expenses resulting from contracts with clinical research organizations (CROs), consultants,

and clinical site agreements in connection with conducting clinical trials. The financial terms of these contracts are subject to negotiations, which vary from contract to contract and may result in payment flows that do not match the periods over which materials or services are provided to us under such contracts. The objective is to reflect the appropriate expense in the financial statements by matching the appropriate expenses with the period in which services and efforts are expended. In the event advance payments are made to a CRO, the payments will be recorded as a prepaid expense, which will be expensed as services are rendered. Payments made to third parties under these arrangements in advance of the performance of the related services by the third parties are recorded as prepaid expenses until the services are rendered. Payments associated with licensing agreements to acquire exclusive licenses to develop, use, manufacture and commercialize products that have not reached technological feasibility and do not have alternate commercial use are expensed as incurred.

The CRO contracts generally include pass-through fees including, but not limited to, regulatory expenses, investigator fees, travel costs and other miscellaneous costs. The Company determines accrual estimates through reports from and discussion with clinical personnel and outside services providers as to the progress or state of completion of trials, or the services completed. The Company estimates accrued expenses as of each balance sheet date based on the facts and circumstances known at that time. The clinical trial accrual is dependent, in part, upon the receipt of timely and accurate reporting from the CROs and other third-party vendors.

If the actual timing of the performance of services or the level of effort varies from the original estimates, the Company will adjust the accrual accordingly. Payments associated with licensing agreements to acquire exclusive licenses to develop, use, manufacture and commercialize products that have not reached technological feasibility and do not have alternate commercial use are expensed as incurred. Payments made to third parties under these arrangements in advance of the performance of the related services by the third parties are recorded as prepaid expenses until the services are rendered.

Patent Costs

Costs related to filing and pursuing patent applications are expensed as incurred, as recoverability of such expenditures is uncertain. These costs are included in general and administrative expenses and were immaterial for each of the periods presented.

Income Taxes

The Company accounts for income taxes under the asset and liability method. The Company estimates actual current tax exposure together with assessing temporary differences resulting from differences in accounting for reporting purposes and tax purposes for certain items, such as accruals and allowances not currently deductible for tax purposes. These temporary differences result in deferred tax assets and liabilities. In general, deferred tax assets represent future tax benefits to be received when certain expenses previously recognized in the Company's statements of operations become deductible expenses under applicable income tax laws or when net operating loss or credit carryforwards are utilized. Accordingly, realization of the Company's deferred tax assets is dependent on future taxable income against which these deductions, losses and credits can be utilized.

The Company must assess the likelihood that the Company's deferred tax assets will be recovered from future taxable income, and to the extent the Company believes that recovery is not likely, the Company establishes a valuation allowance. The assessment of whether or not a valuation allowance is required often requires significant judgment, including the forecast of future taxable income and on-going prudent and feasible tax planning initiatives. Based upon the weight of available evidence, the Company has determined that total deferred tax assets should be fully offset by a valuation allowance. When the Company establishes or reduces the valuation allowance against its deferred tax assets, its

provision for income taxes will increase or decrease, respectively, in the period such determination is made. As of December 31, 2018 and 2019, the Company recorded a full valuation allowance on its deferred tax assets.

The Company recognizes benefits of uncertain tax positions if it is more likely than not that such positions will be sustained upon examination based solely on their technical merits, as the largest amount of benefit that is more likely than not to be realized upon the ultimate settlement. The Company's policy is to recognize interest and penalties related to the underpayment of income taxes as a component of income tax expense or benefit. To date, there have been no interest or penalties charged in relation to unrecognized tax benefits.

Fair Value of Common Stock Warrants

Warrants are recorded either as equity instruments or derivative liabilities at their estimated fair value at the date of issuance. The Company has issued a freestanding warrant to purchase shares of common stock in connection with certain debt financing transactions. The warrant is classified as an equity instrument and recorded at its relative fair value upon issuance using the Black-Scholes option pricing model which was based, in part, upon inputs for which there was little or no observable market data, requiring the Company to develop its own assumptions. Inherent in this model were assumptions related to expected stock price volatility, expected life, risk-free interest rate and dividend yield. The Company estimated the volatility of its common stock at the date of issuance, and at each subsequent reporting period, based on historical volatility that matched the expected remaining life of the warrant. The risk-free interest rate was based on the U.S. Treasury zero-coupon yield curve on the measurement date for a maturity similar to the expected remaining life of the warrant. The expected life of the warrant was assumed to be equivalent to its remaining contractual term. The dividend rate was based on the Company's historical rate, which was at zero. The assumptions used in calculating the estimated fair value of the warrant represented the Company's best estimates.

Stock-Based Compensation

The Company has an equity incentive plan under which various types of equity-based awards including, but not limited to, incentive stock options, non-qualified stock options, and restricted stock awards, may be granted to employees, non-employee directors, and non-employee consultants.

For equity awards granted to employees and directors, the Company recognizes compensation expense based on the estimated grant-date fair values. The fair value of stock options is determined using the Black-Scholes option pricing model. The Company recognizes compensation expense for stock option awards on a straight-line basis over the requisite service period of the award, generally four years. Forfeitures are recorded as they occur.

Stock-based compensation expense related to stock options granted to nonemployees is recognized based on the fair value of the stock options, determined using the Black-Scholes option pricing model, as they are earned. The awards generally vest over the time period the Company expects to receive services from the nonemployee. Non-employee stock-based compensation expense was not material in any period presented.

The Company's determination of the fair value of stock options with time-based vesting on the date of grant utilizes the Black-Scholes option-pricing model, and is impacted by its common stock price as well as other variables including, but not limited to, expected term that options will remain outstanding, expected common stock price volatility over the term of the option awards, risk-free interest rates and expected dividends. The fair value of a stock-based award is recognized over the period during which an optionee is required to provide services in exchange for the option award, known as the requisite service period (usually the vesting period) on a straight-line basis. Stock-based compensation expense

is recognized based on the fair value determined on the date of grant and is reduced for forfeitures as they occur.

Fair Value of Financial Instruments

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability, or an exit price, in the principal or most advantageous market for that asset or liability in an orderly transaction between market participants on the measurement date. Fair value measurement establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs, where available, and minimize the use of unobservable inputs when measuring fair value.

The Company determined the fair value of financial assets and liabilities using the fair value hierarchy that describes three levels of inputs that may be used to measure fair value, as follows:

- Level 1—Quoted prices in active markets for identical assets and liabilities;
- Level 2—Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The Company's financial instruments primarily consist of cash and cash equivalents, prepaid expenses, accounts payable, accrued expenses, and term loan. The carrying values of cash and cash equivalents, prepaid expenses, accounts payable and accrued expenses are generally considered to be representative of their respective fair values because of the short-term nature of those instruments. Based upon the borrowing terms and conditions currently available to the Company, the carrying value of the term loan approximates the estimated fair value.

Net Loss Per Share

Basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period, without consideration for potentially dilutive securities. Diluted net loss per share attributable to common stockholders is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common stock and potentially dilutive securities outstanding for the period. For purposes of the diluted net loss per share calculation, redeemable convertible preferred stock, stock options, and common stock warrants are considered to be potentially dilutive securities. Basic and diluted net loss attributable to common stockholders per share is presented in conformity with the two-class method required for participating securities as the redeemable convertible preferred stock is considered a participating security because it participates in dividends with common stock. The holders of all series of redeemable convertible preferred stock do not have a contractual obligation to share in the Company's losses. As such, the net loss was attributed entirely to common stockholders. Because the Company has reported a net loss for all periods presented, diluted net loss per share is the same as basic net loss per share for those periods.

Commitments and Contingencies

From time to time, the Company may have certain contingent liabilities that arise in the ordinary course of business. The Company evaluates the likelihood of an unfavorable outcome in legal or regulatory proceedings to which it is a party and records a loss contingency on an undiscounted basis when it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. These judgments are subjective and based on the status of such legal proceedings, the merits of the Company's defenses, and consultation with legal counsel. Actual outcomes of these legal

proceedings may differ materially from the Company's estimates. The Company estimates accruals for legal expenses when incurred as of each balance sheet date based on the facts and circumstances known to the Company at that time.

Recent Accounting Pronouncements Not Yet Adopted

The Company is an emerging growth company (EGC) as defined in the Jumpstart Our Business Startups Act of 2012 (JOBS Act) and may take advantage of reduced reporting requirements that are otherwise applicable to public companies. Section 107 of the JOBS Act exempts emerging growth companies from being required to comply with new or revised financial accounting standards until private companies are required to comply with those standards. The Company has elected to use the extended transition period for complying with new or revised accounting standards.

In February 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-02, *Leases*. ASU 2016-02 requires a lessee to recognize right of use asset and lease liability for all leases with lease terms of more than 12 months, along with additional qualitative and quantitative disclosures. Companies may adopt this guidance using a modified retrospective approach for leases that exist or are entered into after the beginning of the earliest comparative period in the financial statements. In July 2018, the FASB issued ASU No. 2018-11, *Leases* (Topic 842): Targeted Improvements, which provides the option of an additional transition method that allows entities to initially apply the new lease guidance at the adoption date and recognize a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption, rather than as of the earliest period presented. In transition, entities may also select a package of practical expedients that must be applied in its entirety to all leases commencing before the effective date, unless the lease was modified, to not reassess (a) the existence of a lease, (b) lease classification or (c) determination of initial direct costs, which effectively allows entities to carryforward accounting conclusions under previous U.S. GAAP. ASU 2016-02 is effective for non-EGC's for fiscal years beginning after December 15, 2018, and for EGC's electing to use the extended transition period for complying with new or revised accounting standards for fiscal years beginning after December 15, 2020, with early adoption permitted. The Company intends to adopt this ASU effective January 1, 2020. While the Company is currently in the process of evaluating the potential impact of the adoption of the new lease guidance on its financial statements and related disclosures, it anticipates that the adoption will result in an increase in assets and liabilities recorded on its balance sheet.

In June 2016, the FASB issued ASU 2016-13, *Measurement of Credit Losses on Financial Instruments (Topic 326): Measurement of Credit Losses on Financial Instruments* (ASU 2016-13). ASU 2016-13 requires companies to measure credit losses utilizing a methodology that reflects expected credit losses and requires a consideration of a broader range of reasonable and supportable information to inform credit loss estimates. ASU 2016-13 is effective for non-EGC's electing to use the extended transition period for complying with new or revised accounting standards for fiscal years beginning after December 15, 2019, and for EGC's for fiscal years beginning after December 15, 2022, with early adoption permitted. The Company expects to adopt this ASU beginning January 1, 2023. The Company is currently assessing the impact of adopting this standard, but based on a preliminary assessment, does not expect the adoption of this guidance to have a material impact on its financial statements.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820).* This new guidance removes, modifies and adds to certain disclosure requirements on fair value measurements in Topic 820. This new guidance is effective for all entities for fiscal years beginning after December 15, 2019 and the Company will adopt ASU 2018-13 as of January 1, 2020. The Company does not anticipate adoption will have a material impact on its financial position or results of operations.

In December 2019, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes.* The amendments in ASU 2019-12 are intended to simplify various aspects related to accounting for income taxes. ASU 2019-12 removes certain exceptions to the general principles in Topic 740 and also clarifies and amends existing guidance to improve consistent application. ASU 2019-12 is effective for public business entities for fiscal years beginning after December 15, 2020 and the Company will adopt beginning January 1, 2021. The Company is currently evaluating the effect this standard will have on its financial statements and disclosures.

Recently Adopted Accounting Pronouncements

Effective January 1, 2018, the Company adopted ASU 2014-09, *Revenue from Contracts with Customers* (ASU 2014-09 or ASC 606) and related ASUs. This ASU sets forth a new five-step revenue recognition model which replaces most existing revenue recognition guidance including industry-specific guidance. Under ASC 606, the Company recognizes revenue when its customers obtain control of promised goods or services, in an amount that reflects the consideration which it expects to receive in exchange for those goods or services. The Company did not have any contracts with customers during either period presented in these financial statements. As such, the adoption of ASC 606 did not have an impact on the financial statements.

Effective January 1, 2018, the Company adopted ASU 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash (a consensus of the FASB Emerging Issues Task Force)* (ASU 2016-18). This standard was intended to eliminate diversity in practice in the treatment of restricted cash in the statement of cash flows and requires that the statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents, by including restricted cash in the beginning and ending cash, cash equivalents, and restricted cash balances. The Company did not have any restricted cash balances during either of the years ended December 31, 2018 and 2019. As such, the adoption of ASU 2016-18 did not have an impact on the Company's financial statements.

Effective January 1, 2018, the Company adopted ASU 2018-07, Compensation—Stock Compensation (Topic 718): *Improvements to Nonemployee Share-Based Payment Accounting*. Prior to the adoption of ASU 2018-07, the measurement date for non-employee awards was generally the date the services are completed, resulting in financial reporting period adjustments to equity-based compensation during the vesting terms for changes in the fair value of the awards. After the adoption of ASU 2018-07, the measurement date for non-employee awards is the date of grant without changes in the fair value of the award. The impact of adopting ASU 2018-07 was not material to the Company's financial statements.

3. Fair Value Measurements

The carrying amounts of cash equivalents approximate their fair value based upon quoted market prices. Certain of the Company's financial instruments are not measured at fair value on a recurring basis but are recorded at amounts that approximate their fair value due to their liquid or short-term nature, such as cash, prepaid expenses, accounts payable and accrued expenses.

The following tables summarize the Company's financial assets measured at fair value on a recurring basis by level within the fair value hierarchy as of December 31, 2018 (in thousands):

		Fair Value Measurement		
	Total	Level 1	Level 2	Level 3
Cash equivalents				
Money market funds	$1,548	$1,548	$ –	$ –
Total	$1,548	$1,548	$ –	$ –

No assets requiring disclosure within the table were measured at fair value as of December 31, 2019 and no liabilities were recorded at fair value on a recurring or non-recurring basis as of December 31, 2018 and 2019.

The estimated fair value of our term loan was $4.5 million as of December 31, 2019 and was based on estimated interest rates currently available to the Company for debt with similar terms, a Level 3 input.

4. Term Loan

In September 2019, the Company entered into a Loan and Security Agreement (the Loan Agreement) with Silicon Valley Bank (SVB) providing for a term loan (the Term Loan). In April 2020, the Company and SVB entered into an agreement (the Deferral Agreement) whereby the parties agreed to extend the Interest-Only Period (defined below), repayment dates of all monthly payments of principal due and the maturity date with respect to the Term Loan by six months. All other terms of the Term Loan remained unchanged. The Deferral Agreement was determined to be a debt modification, resulting in a prospective yield adjustment based on the revised terms.

Pursuant to the Loan Agreement, the Company had the ability to request up to $4.5 million of borrowings in two tranches of term loans. In September 2019, the Company requested $2.5 million from the first tranche (the First Tranche) in connection with the entry into the Loan Agreement. The Loan Agreement provided the option to request an additional $2.0 million (the Second Tranche), after the Company reached certain borrowing conditions as stipulated in the Loan Agreement. The Company satisfied these conditions and drew the Second Tranche of $2.0 million in December 2019. Pursuant to the Deferral Agreement, principal payments shall commence in January 2021 and the Term Loan will mature in September 2022.

Outstanding principal balances under the Term Loan bear interest at a floating per annum rate equal to the greatest of: (i) 1% below the prime rate, (ii) 4.25%, or (iii) 1% below the prime rate as of September 23, 2019. Under the Term Loan, as amended by the Deferral Agreement, the Company is required to make monthly payments of interest only commencing on the first day of the month following the funding date of each respective tranche and continuing thereafter through December 31, 2020 (the Interest-Only Period). Following the Interest-Only Period, the outstanding Term Loan balance will be payable in (i) 21 consecutive equal monthly payments of principal beginning on the first day of the calendar month after the end of the Interest-Only Period and continuing on the same day of each month thereafter, in amounts that would fully amortize such note balance, as of January 1, 2021, over the repayment period, plus (ii) monthly payments of accrued but unpaid interest. The final payment due on the maturity date shall include all outstanding principal and all accrued unpaid interest and an end of term payment totaling 6% of the combined principal amount of the First and Second Tranches, or $0.3 million (End of Term Payment). The End of Term Payment is being accrued through interest expense using the effective interest method. The Company may prepay amounts outstanding under the Term Loan at any time provided certain notification conditions are met, in which case, all outstanding principal plus accrued and unpaid interest, the End of Term Payment, a prepayment fee between 1% and 3% of the principal amount of the First and Second Tranches, and any bank expenses become due and payable.

In connection with the First and Second Tranches under the Loan Agreement, the Company issued a warrant to purchase up to an aggregate 324,499 shares of common stock at $0.22 per share. The Company determined the initial fair value of the warrant to be $0.1 million using the Black-Scholes option-pricing model. The fair value of the warrant was recorded to equity and as a debt discount, which is amortized to interest expense using the effective interest method over the term of the Term Loan.

The Company also incurred $0.01 million of debt issuance costs in connection with the Term Loan, which is being amortized using the effective interest method over the life of the Term Loan. The unamortized debt discount and debt issuance costs balance was $0.06 million as of December 31, 2019.

The Term Loan and unamortized discount and debt issuance costs balances as of December 31, 2019 are shown below (in thousands):

Total Term Loan debt	$ 4,500
Less: unamortized discount and debt issuance costs	(55)
Total Term Loan, net	4,445
Less: Term Loan, current portion	(1,252)
Term Loan, net of current portion	$ 3,193

The Company is subject to customary affirmative and restrictive covenants under the Loan Agreement. The Company's obligations under the Loan Agreement are secured by a first priority security interest in substantially all of its current and future assets, other than intellectual property. The Company also agreed not to encumber its intellectual property assets, except as permitted by the Loan Agreement.

The Loan Agreement also contains customary indemnification obligations and customary events of default, including, among other things, the Company's failure to fulfill certain obligations under the Loan Agreement and the occurrence of a material adverse change in its business, operations, or condition (financial or otherwise), a material impairment of the prospect of repayment of any portion of the loan, or a material impairment in the perfection or priority of lender's lien in the collateral or in the value of such collateral. In the event of default by the Company under the Loan Agreement, the lender would be entitled to exercise their remedies thereunder, including the right to accelerate the debt, upon which the Company may be required to repay all amounts then outstanding under the Loan Agreement. As of December 31, 2019, management believes that the Company was in compliance with all financial covenants under the Loan Agreement and there have been no material adverse changes.

As of December 31, 2019, future principal payments under the Term Loan are as follows (in thousands):

Year Ending December 31:	
2020	$1,286
2021	2,571
2022	643
Total	$4,500

The Company made interest payments on the Term Loan of $0.02 million during the year ended December 31, 2019.

5. Capital Structure

Common Stock

As of December 31, 2018 and 2019, the Company was authorized to issue 33,000,000 and 41,000,000 shares of $0.0001 par value common stock, respectively. Common stockholders are entitled to dividends if and when declared by the Board of Directors of the Company (Board of Directors) and after any convertible preferred share dividends are fully paid. The holder of each share of common stock is entitled to one vote. As of December 31, 2019, no dividends were declared.

Shares reserved for future issuance

Common stock reserved for future issuance, on an as converted basis, consisted of the following:

	December 31,	
	2018	2019
Series A redeemable convertible preferred stock	20,000,000	28,000,000
Stock options outstanding	2,815,000	5,620,906
Common stock warrant	–	324,499
Total shares reserved	22,815,000	33,945,405

Redeemable Convertible Preferred Stock

In May 2016, the Company issued and sold 20,000,000 shares of Series A redeemable convertible preferred stock (Series A preferred stock) at $1.0000 per share for aggregate proceeds of $20.0 million. In February 2019, the Company issued and sold an additional 8,000,000 shares of Series A preferred stock at $1.0000 per share for aggregate proceeds of $8.0 million.

Issued and outstanding redeemable convertible preferred stock as of December 31, 2018, and its principal terms during the year then ended were as follows (in thousands, except share and per share amounts):

	Shares Authorized	Shares Issued and Outstanding	Original Issue Price Per Share	Aggregate Liquidation Amount	Net Carrying Value
Series A	20,500,000	20,000,000	$ 1.0000	$ 20,000	$ 19,872

Issued and outstanding redeemable convertible preferred stock as of December 31, 2019, and its principal terms during the year then ended were as follows (in thousands, except share and per share amounts):

	Shares Authorized	Shares Issued and Outstanding	Original Issue Price Per Share	Aggregate Liquidation Amount	Net Carrying Value
Series A	28,000,000	28,000,000	$ 1.0000	$ 28,000	$ 27,813

The holders of redeemable convertible preferred stock have various rights and preferences, including the following:

Liquidation Preference

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or deemed liquidation event, the holders of the Series A preferred stock shall be entitled to be paid out of the assets of the Company, prior and in preference to any distribution to the holders of common stock, an amount equal to the original issuance price of $1.00 per share, plus all declared but unpaid dividends, if any.

If the assets available for distribution to stockholders are insufficient to pay the holders of shares of the Series A preferred stock the full amount to which they are entitled, then the entire assets of the Company legally available for distribution will be distributed ratably among the holders of the Series A preferred stock in proportion to the respective amounts each such holder is otherwise entitled to receive.

After the payment to the holders of the Series A preferred stock of the full preferential amount specified above, any remaining assets shall be distributed pro rata to the holders of the Series A

preferred stock and common stock based upon the respective shares of common stock held by each holder (assuming conversion of all such redeemable convertible preferred stock into common stock). The Series A preferred stockholders are entitled to receive the greater of the maximum participation amount of $4.00 per share or the amount they would have received if all shares of Series A preferred stock were converted into common stock immediately prior to such liquidation, dissolution, or wind up.

Conversion

The shares of Series A preferred stock are convertible into such number of shares of common stock as is determined by dividing the original issue price by the conversion price in effect at the time of conversion., at the option of the holder. The conversion price shall initially be equal to $1.00 per share, subject to certain anti-dilution adjustments. Each share of Series A preferred stock is automatically converted into common stock (i) immediately prior to the closing of the Company's sale of its common stock in a firm commitment underwritten public offering pursuant to a registration statement under the Securities Act of 1933, as amended, in which the valuation of the Company immediately prior to such firmly underwritten public offering is at least $100.0 million, the gross cash proceeds are at least $50.0 million and the Company's shares have been listed for trading on the New York Stock Exchange, Nasdaq Global Select Market or Nasdaq Global Market or (ii) upon the affirmative vote of a majority of the then-outstanding shares of Series A preferred stock.

Voting

The holders of Series A preferred stock are entitled to one vote for each share of common stock into which such Series A preferred stock could then be converted; and with respect to such vote, such holders have full voting rights and powers equal to the voting rights and powers of the holders of common stock in addition to certain separate voting requirements in favor of the holders of Series A preferred stock.

The holders of Series A preferred stock, voting as a separate class, are entitled to elect three directors to the Board of Directors. Additionally, holders of common stock, voting as a separate class, are entitled to elect one director to the Board of Directors. All common and redeemable convertible preferred stockholders, voting together as a single class on an as-converted basis, are entitled to elect the balance of the total number of directors to the Board of Directors.

Dividends

The holders of the Series A preferred stock shall be entitled to receive non-cumulative dividends at an annual rate of 8% of the original purchase price of the Series A preferred stock when and if declared by the Board of Directors and in preference to any dividends paid to the holders of common stock. After payment of such dividends, any additional dividends shall be distributed among the holders of Series A preferred stock and common stock on a pro rata basis based upon the respective shares of common stock held by each holder (assuming conversion of all such redeemable convertible preferred stock into common stock). No dividends were declared in the years ended December 31, 2018 and 2019.

6. Equity Incentive Plan and Stock-Based Compensation Expense

Stock Options

The Company's 2016 Stock Plan was originally adopted on April 8, 2016, and most recently amended on October 14, 2016 and February 19, 2020 (as restated, the Plan). The Plan allows the Company to grant restricted stock units, restricted stock and stock options to employees and consultants of the Company, and to the members of the Board of Directors. Options granted under the Plan may be either incentive stock options (ISO) or nonqualified stock options (NSO). ISOs may only

be granted to employees of the Company (including officers and directors who are also employees). NSOs may be granted to any person eligible for grants under the Plan.

Under the Plan, the Board of Directors determines the per share exercise price of each stock option, which for ISOs shall not be less than 100% of the fair market value of a share on the date of grant; provided that the exercise price of an ISO granted to a stockholder who at the time of grant owns stock representing more than 10% of the voting power of all classes of stock (a 10% stockholder) shall not be less than 110% of the fair market value of a share on the date of grant.

The Board of Directors determines the period over which options vest and become exercisable. Options granted to new employees generally vest over a four-year period: 25% of the shares vest on the first anniversary from the vesting commencement date of the option and an additional 1/48th of the shares vest on each monthly anniversary thereafter, subject to the employee's continuous service through each vesting date.

The Board of Directors also determines the term of options, provided the maximum term for ISOs granted to a 10% stockholder must be no longer than five years from date of grant and the maximum term for all other options must be no longer than ten years from date of grant. If an option holder's service terminates, options generally terminate three months from the date of termination except under certain circumstances, such as death or disability.

Under the Plan, individuals can be granted the ability to early exercise their options. There were no shares, related to the early exercise of options, subject to repurchase by the Company as of December 31, 2018 and 2019.

A summary of the Company's stock option activity and related information is as follows (in thousands, except share and per share amounts):

	Outstanding Stock Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value
Balance as of January 1, 2018	2,445,000	$ 0.13	9.2	$ –
Granted	390,000	0.17	–	–
Exercised	–	–	–	–
Forfeited/Cancelled	(20,000)	0.13	–	–
Balance as of December 31, 2018	2,815,000	0.14	8.4	123
Granted	3,173,406	0.22	–	–
Exercised	–	–	–	–
Forfeited/Cancelled	(367,500)	0.13	–	–
Balance as of December 31, 2019	5,620,906	$ 0.18	7.9	$ 209
Vested and expected to vest as of December 31, 2019	5,620,906	$ 0.18	7.9	$ 209
Vested and exercisable as of December 31, 2019	2,134,099	$ 0.15	5.5	$ 159

The aggregate intrinsic values of options outstanding and exercisable were calculated as the difference between the exercise price of the options and the estimated fair value of the Company's common stock as determined by the Company's Board of Directors as of December 31, 2018 and 2019.

Total shares authorized for issuance as of December 31, 2018 and 2019 were 5,000,000 and 5,650,906 shares, respectively, and 2,185,000 and 30,000 shares remained available for issuance under the Plan at December 31, 2018 and 2019, respectively.

Stock Options Granted to Employees

The Company recognizes compensation expense for stock option awards granted to employees on a straight-line basis over the requisite service period of the award, generally four years. During the years ended December 31, 2018 and 2019, the Company granted options to purchase 330,000 shares and 2,518,406 shares of common stock to employees with a weighted-average exercise price of $0.18 and $0.22 per share, respectively. The weighted-average grant date fair value of the employee stock options granted of $0.12 and $0.15 per share, respectively, was estimated using the Black-Scholes option-pricing model, with the following weighted-average assumptions during the years ended December 31, 2018 and 2019:

	2018	2019
Expected term (in years)	6.1	6.0
Expected volatility	79.10%	80.00%
Risk-free interest rate	2.80%	1.80%
Expected dividend rate	0%	0%

The total fair value of options that vested during the years ended December 31, 2018 and 2019 was approximately $56 and $97 thousand, respectively.

Fair Value of Common Stock

The fair value of the shares of common stock underlying the stock options has historically been determined by the Board of Directors. Because there is no public market for the Company's common stock, the Board of Directors has determined fair value of the common stock at the time of grant of the option by considering a number of objective and subjective factors including valuation of comparable companies, sales of redeemable convertible preferred stock to third parties, operating and financial performance, the lack of liquidity of capital stock, and general and industry specific economic outlook, amongst other factors. The fair value of the underlying common stock shall be determined by the Board of Directors until such time as the Company's common stock is listed on an established stock exchange or national market system.

The Black-Scholes option-pricing model requires the use of highly subjective assumptions which determine the fair value of stock-based awards. These assumptions include:

- *Expected Term.* The expected term for employees is based on the simplified method, as the Company's stock options have the following characteristics: (i) granted at-the-money; (ii) exercisability is conditioned upon service through the vesting date; (iii) termination of service prior to vesting results in forfeiture; (iv) limited exercise period following termination of service; and (v) options are non-transferable and non-hedgeable, or "plain vanilla" options, and the Company has limited history of exercise data. The expected term for non-employees is based on the remaining contractual term.
- *Expected Volatility.* Since the Company is a privately held entity with no trading history for its common stock, the expected volatility was estimated based on the volatility for comparable publicly traded biopharmaceutical companies. In evaluating similarity, the Company considered factors such as size, life cycle stage, and area of specialty. The Company will continue to analyze the historical stock price volatility and expected term assumptions as more historical data for the Company's common stock becomes available.

- *Risk-Free Interest Rate.* The risk-free interest rate is based on U.S. Treasury constant maturity rates with remaining terms similar to the expected term of the options.
- *Expected Dividend Rate.* The Company has never paid any dividends and does not plan to pay dividends in the foreseeable future, and, therefore, used an expected dividend rate of zero in the valuation model.
- *Forfeitures.* The Company accounts for forfeitures as they occur.

Stock Options Granted to Nonemployees

Stock-based compensation expense related to stock options granted to nonemployees is recognized as the stock options are earned. The Company believes that the fair value of the stock options is more reliably measurable than the fair value of services received. During the years ended December 31, 2018 and 2019, the Company granted options to purchase 60,000 shares and 655,000 shares of common stock to nonemployees with a weighted-average exercise price of $0.16 and $0.22 per share, respectively.

Total Stock-Based Compensation

Total stock-based compensation expense related to options granted to employees and nonemployees was allocated as follows during the years ended December 31, 2018 and 2019 (in thousands):

	Year Ended December 31,	
	2018	2019
Research and development	$ 54	$ 119
General and administrative	47	77
Total stock-based compensation expense	$ 101	$ 196

Unrecognized compensation expense as of December 31, 2019 for stock-based awards was approximately $0.4 million, which is expected to be recognized over a weighted-average vesting term of 3.0 years.

7. License Agreement

In May 2016, the Company entered into a license agreement (the License Agreement), with Eli Lilly and Company (Lilly). Pursuant to the terms of the License Agreement, Lilly granted the Company an exclusive, worldwide, royalty bearing, sublicensable license under certain technology, patent rights, know-how and proprietary materials related to certain compounds, to research, develop, and commercialize such compounds for all pharmaceutical uses.

As partial consideration for the rights granted to the Company under the License Agreement, the Company made a one-time upfront payment to Lilly of $0.8 million during the year ended December 31, 2016, which was recorded as research and development expense as there was no alternative use due to the early stage of the technology. The Company is also required to pay Lilly up to an aggregate of $23.0 million upon the achievement of certain clinical and commercialization milestones. In addition, the Company is required to pay Lilly tiered royalties on annual worldwide net sales with rates ranging from mid-single-digits to sub-teens. No additional amounts were paid by the Company to Lilly during the fiscal years ended December 31, 2018 and 2019 or were due as of such dates pursuant to the License Agreement.

The License Agreement will remain in effect, unless earlier terminated, until the expiration of the royalty payment obligations. Royalties are payable on a product-by-product and country-by-country

basis from the first commercial sale of the product until the later of (i) the tenth anniversary of the date of first commercial sale in such country, (ii) the expiration in such country of the last-to-expire licensed patent having a valid claim covering the manufacture, use or sale of the licensed product as commercialized in such country, and (iii) the expiration of any data or regulatory exclusivity period for the licensed product in such country.

8. Income Taxes

The Company has incurred cumulative net operating losses (NOL) since inception and, consequently, has not recorded any income tax expense for the years ended December 31, 2018 and 2019 due to its net operating loss position.

The reconciliation of the federal statutory income tax rate to the Company's effective tax rate is as follows:

	December 31,	
	2018	2019
Federal statutory tax rate	(21.00)%	(21.00)%
Nondeductible expenses	(0.33)%	(0.14)%
Change in valuation allowance	22.92%	23.15%
Other	0.05%	0.01%
Credits and reserves	(1.64)%	(2.02)%
Effective tax rate	0.00%	0.00%

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Realization of deferred tax assets is dependent upon future earnings, if any, the timing and amount of which are uncertain. Accordingly, the net deferred tax assets have been fully offset by a valuation allowance. The net valuation allowance increased by approximately $2.5 million and $3.0 million during the years ended December 31, 2018 and 2019, respectively.

Significant components of the Company's net deferred tax assets and liabilities are as follows (in thousands):

	December 31,	
	2018	2019
Deferred tax assets:		
Net operating loss carryforwards	$ 3,581	$ 6,259
Accruals	70	151
Intangible assets	130	119
Tax Credits	418	682
Other	7	25
Total gross deferred tax assets	4,206	7,236
Valuation allowance for deferred tax assets	(4,206)	(7,236)
Total net deferred tax assets	$ –	$ –

As of December 31, 2018, the Company had federal net operating loss carryforwards of approximately $17.1 million and no state net operating loss carryforwards. As of December 31, 2019, the Company had federal net operating loss carryforwards of approximately $29.8 million and no state net operating loss carryforwards. If not utilized, the federal net operating loss carryforwards incurred

before January 1, 2018 will begin to expire in 2036. The federal net operating losses incurred in 2018 and beyond do not expire.

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the Code), if a corporation undergoes an “ownership change,” the corporation’s ability to use its pre-change net operating loss carryforwards and other pre-change attributes, such as research tax credits, to offset its post-change income may be limited. In general, an “ownership change” will occur if there is a cumulative change in our ownership by “5% shareholders” that exceeds 50 percentage points over a rolling three-year period. Similar rules may apply under state tax laws. The Company completed a study through December 31, 2019 to determine whether an ownership change had occurred under Section 382 or 383 of the Code, and determined at that time that an ownership change occurred in 2016. As a result, the Company’s net operating losses generated through the ownership change date may be subject to limitation under Section 382 of the Code. The amount of pre-change loss carryforwards which may be subject to this limitations were insignificant. The Company’s ability to use net operating loss carryforwards, research and development credit carryforwards and other tax attributes to reduce future taxable income and liabilities may be further limited as a result of future changes in stock ownership. As a result, if the Company earns net taxable income, our ability to use our pre-change net operating loss carryforwards or other pre-change tax attributes to offset United States federal and state taxable income may still be subject to limitations, which could potentially result in increased future tax liability to us.

As of December 31, 2018, the Company had federal and state research credit carry forwards of approximately $0.3 million and $0.1 million, respectively. As of December 31, 2019, the Company had federal and state research credit carry forwards of approximately $0.5 million and $0.3 million, respectively. If not utilized, the federal tax credits will begin to expire in 2036 and the state tax credits do not expire. As a result of the previously mentioned ownership changes, the Company has derecognized an immaterial amount of gross federal research and development credit-related deferred tax assets due to the Section 383 limitation as of December 31, 2019. The Company has not derecognized any of the California research and development credit-related deferred tax assets because the credits do not expire.

In February 2018, the SEC staff issued SAB 118 which provided guidance on accounting for the tax effects of the Tax Reform Act. SAB 118 provided a measurement period should not extend beyond one year from the Tax Reform Act enactment date for companies to complete the accounting related to the Tax Reform Act under ASC 740, Income Taxes. The Company completed its assessment of the accounting impact resulting from the Tax Reform Act in the fourth quarter of 2018 and determined there was no adjustment to the Company’s financial statements.

On March 27, 2020, the Coronavirus Aid, Relief and Economic Security (CARES) Act (the Act) was signed into law. The Act includes provisions relating to refundable payroll tax credits, deferment of the employer portion of certain payroll taxes, net operating loss carryback periods, alternative minimum tax credit refunds, modifications to the net interest deduction limitations, and technical corrections to tax depreciation methods for qualified improvement property. The Company analyzed the provisions of the Act and determined there was no significant impact to its 2019 tax provision.

Uncertain Income Tax Positions

The Company only recognizes tax benefits if it is more likely than not that they will be sustained upon audit by the relevant tax authority based upon their technical merits. An uncertain tax position will not be recognized if it has less than a 50% likelihood of being sustained.

The Company does not expect the amount of unrecognized tax benefits to materially change in the next 12 months.

A reconciliation of the beginning and ending balance of the unrecognized tax benefits is as follows (in thousands):

	December 31,	
	2018	2019
Balance at the beginning of the year	$ 90	$ 230
Increase of unrecognized tax benefits taken in prior years	–	–
Increase of unrecognized tax benefits related to current year	140	168
Balance at the end of the year	$ 230	$ 398

Interest and penalty related to unrecognized tax benefits would be included as income tax expense in the Company's statements of operations. As of December 31, 2018 and 2019, the Company had not recognized any tax-related penalties or interest in its financial statements.

The Company files income tax returns in the U.S. federal jurisdiction and California state jurisdiction. The Company is not currently under audit by the Internal Revenue Service or any other similar state, local, or foreign authority. All tax years remain open to examination by major taxing jurisdictions to which the Company is subject.

9. Commitments and Contingencies

Operating Leases

In August 2017, the Company entered into a 17-month sublease for office space covering the period from September 2017 to January 2019. In February 2019, the Company entered into a 12-month lease for office space covering the period March 2019 to February 2020. Aggregate rent expense totaled $0.1 million in each of the years ended December 31, 2018 and 2019.

As of December 31, 2019, future annual minimum payments under the non-cancelable operating lease is $0.03 million for the year ending December 31, 2020.

Legal Matters

The Company's industry is characterized by frequent claims and litigation, including claims regarding intellectual property. As a result, the Company may be subject to various legal proceedings from time to time. The results of any future litigation cannot be predicted with certainty, and regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management resources and other factors. Management is not aware of any pending or threatened litigation.

10. 401(k) Retirement Savings Plan

In December 2017, the Company adopted a 401(k) plan (the 401(k) Plan) for all employees who have met certain eligibility requirements. Under the agreement, employees may elect to contribute a portion of their eligible compensation, subject to certain limitations. The Company did not make any matching employer contributions to the 401(k) Plan as of and for the years ended December 31, 2018 and 2019.

11. Related Party Transactions

In May 2016, the Company entered into a consulting agreement with an immediate family member of a former executive officer to provide services for a monthly retainer of $5 thousand. In connection with the consulting agreement, the immediate family member of a former executive officer received an option grant to purchase 60,000 shares of common stock. The consulting agreement was amended in November 2016 to expand the consultant's role to include additional responsibilities and increase the fee to $10 thousand per month and options on 5,000 shares per month and was subsequently amended in May 2017 to reduce the fee back to $5 thousand in connection with a reduction in responsibilities.

The consulting agreement was terminated in July 2019. In connection with the termination of the agreement, 27,500 shares underlying the aforementioned option grant were forfeited. For the years ended December 31, 2018 and 2019, the fees under the consultant agreement totaled $60 thousand and $30 thousand, respectively.

12. Net Loss, Net Loss Per Share and Unaudited Pro Forma Net Loss Per Share

The following table sets forth the computation of the basic and diluted net loss per share (in thousands, except share and per share amounts):

	Year Ended December 31,	
	2018	2019
Numerator:		
Net Loss	$ (9,858)	$ (13,088)
Denominator:		
Weighted-averages common shares outstanding	4,912,955	5,000,000
Net loss per share, basic and diluted	$ (2.01)	$ (2.62)

Basic net loss per share was the same as diluted net loss per share for the years ended December 31, 2018 and 2019, as the inclusion of potentially dilutive securities would have been anti-dilutive. Potentially dilutive securities were as follows:

	December 31,	
	2018	2019
Series A redeemable convertible preferred stock (on an if-converted basis)	20,000,000	28,000,000
Shares subject to outstanding common stock options(1)	2,815,000	5,620,906
Shares subject to common stock warrants	–	324,499
Total	22,815,000	33,945,405

(1) Subsequent to December 31, 2019, the Board of Directors granted 9,769,000 additional stock options. Refer to Note 13.

Unaudited Pro Forma Basic and Diluted Net Loss Per Share

The following table sets forth the computation of the Company's unaudited pro forma basic and diluted net loss per share (in thousands, except share and per share amounts):

	Year Ended December 31, 2019
Numerator:	
Net Loss	$ (13,088)
Denominator:	
Weighted-averages common shares outstanding	5,000,000
Pro forma adjustment for assumed conversion of redeemable convertible preferred stock	27,013,699
Pro forma weighted-average shares of common stock outstanding	32,013,699
Net loss per share, basic and diluted	$ (0.41)

13. Subsequent Events

The Company has completed an evaluation of all subsequent events through August 7, 2020 to ensure that these financial statements include appropriate disclosure of events both recognized in the financial statements and events which occurred but were not recognized in the financial statements. The Company is unaware of any specific event or circumstance that would require it to update its estimates, judgments or revise the carrying value of its assets or liabilities. These estimates may change, as new events occur and as additional information related to the COVID-19 pandemic and other information is obtained, the impact of which would be recognized in the financial statements as soon as such information become known. Actual results could differ from those estimates and any such differences may be material to the Company's financial statements. Except as described below, the Company has concluded that no subsequent event has occurred that requires disclosure.

Series B Preferred Stock Financing

In February 2020, the Company agreed to issue and sell up to 73,333,330 shares of Series B preferred stock at $1.20 per share for aggregate proceeds of $88.0 million (the Series B Financing) to take place in two closings. In February 2020, pursuant to the Initial Closing of the Series B Financing, the Company issued and sold 36,666,665 shares of Series B preferred stock for approximately $43.6 million in net proceeds. In August 2020, pursuant to a secondary closing, the Company issued and sold an additional 36,666,665 shares of Series B preferred stock for approximately $44.0 million in net proceeds.

In connection with the Series B Financing, the Company amended and restated its Certificate of Incorporation. The Amended and Restated Certificate of Incorporation increased the number of authorized shares of common stock to 130,518,922 and the number of authorized shares of redeemable convertible preferred stock to 101,333,330. Additionally, the Board of Directors approved an increase in the number of shares of common stock reserved for issuance pursuant to the Company's 2016 Equity Incentive Plan to 17,645,906.

Lease Agreement

In February 2020, the Company entered into a non-cancelable operating lease for an office facility. The monthly payments under the lease agreement escalate over the term of the lease. The total aggregate lease payments over the 63-month lease term is approximately $2.3 million.

Deferral Agreement with Silicon Valley Bank

As discussed in Note 4 above, in April 2020, the Company and Silicon Valley Bank entered into the Deferral Agreement whereby the parties agreed to extend the repayment dates of all monthly payments of principal due and the maturity date with respect to the Term Loan by six months. Pursuant to the Deferral Agreement, principal payments shall commence in January 2021 and the Term Loan will mature in September 2022.

Stock Option Grants

In June 2020, the Board of Directors approved the grant of options to purchase an aggregate of 4,620,000 shares of common stock pursuant to the 2016 Stock Plan.

In August 2020, the Board of Directors approved the grant of options to purchase an aggregate of 5,149,000 shares of common stock pursuant to the 2016 Stock Plan.

SPRUCE BIOSCIENCES, INC.
CONDENSED BALANCE SHEETS
(unaudited)
(in thousands, except share and per share amounts)

	December 31, 2019	June 30, 2020	Pro Forma as of June 30, 2020
ASSETS			
Current assets:			
Cash and cash equivalents	$ 3,924	$ 36,601	
Prepaid expenses	215	1,308	
Other current assets	513	569	
Total current assets	4,652	38,478	
Restricted cash	–	216	
Other assets	40	274	
Total assets	$ 4,692	$ 38,968	
LIABILITIES, REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)			
Current liabilities:			
Accounts payable	$ 1,878	$ 2,656	
Term loan, current portion	1,252	1,263	
Accrued expenses	265	1,907	
Accrued compensation and benefits	908	509	
Total current liabilities	4,303	6,335	
Term loan, net of current portion	3,193	3,200	
Other liabilities	20	87	
Total liabilities	7,516	9,622	
Commitments and contingencies (Note 8)			
Series A redeemable convertible preferred stock, $0.0001 par value; 28,000,000 shares authorized and outstanding at December 31, 2019 and June 30, 2020; liquidation preference of $28,000 as of December 31, 2019 and June 30, 2020; no shares authorized, issued or outstanding, pro forma	27,813	27,813	$ –
Series B redeemable convertible preferred stock, $0.0001 par value; zero and 73,333,330 shares authorized at December 31, 2019 and June 30, 2020, respectively; zero and 36,666,665 shares issued and outstanding at December 31, 2019 and June 30, 2020, respectively; liquidation preference of zero and $44,000 as of December 31, 2019 and June 30, 2020, respectively; no shares authorized, issued or outstanding, pro forma	–	43,648	–
Stockholders' equity (deficit):			
Common stock, $0.0001 par value; 41,000,000 and 130,518,922 shares authorized at December 31, 2019 and June 30, 2020, respectively; 5,000,000 and 5,046,875 shares issued and outstanding at December 31, 2019 and June 30, 2020, respectively; 69,713,540 shares issued and outstanding, pro forma	1	1	7
Additional paid-in capital	664	800	72,255
Accumulated deficit	(31,302)	(42,916)	(42,916)
Total stockholders' equity (deficit)	(30,637)	(42,115)	$ 29,346
Total liabilities, redeemable convertible preferred stock and stockholders' equity (deficit)	$ 4,692	$ 38,968	

See accompanying notes to the condensed financial statements.

SPRUCE BIOSCIENCES, INC.
CONDENSED STATEMENTS OF OPERATIONS
(unaudited)
(in thousands, except share and per share amounts)

	Six Months Ended June 30,	
	2019	2020
Operating expenses:		
Research and development	$ 5,862	$ 10,272
General and administrative	1,547	1,250
Total operating expenses	7,409	11,522
Loss from operations	(7,409)	(11,522)
Interest expense	–	(166)
Other income, net	54	74
Net loss	$ (7,355)	$ (11,614)
Net loss per share, basic and diluted	$ (1.47)	$ (2.32)
Weighted-average shares of common stock outstanding, basic and diluted	5,000,000	5,013,908
Pro forma net loss per share, basic and diluted		$ (0.19)
Pro forma weighted-average shares of common stock outstanding, basic and diluted		59,808,779

See accompanying notes to the condensed financial statements.

SPRUCE BIOSCIENCES, INC.
CONDENSED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(unaudited)
(in thousands, except share amounts)

	Redeemable Convertible Preferred Stock Series A		Redeemable Convertible Preferred Stock Series B		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount	Shares	Amount			
Balance as of January 1, 2019	20,000,000	$19,872	–	$ –	5,000,000	$ 1	$ 411	$ (18,214)	$ (17,802)
Issuance of Series A redeemable convertible preferred stock, net of issuance costs of $60	8,000,000	7,941	–	–	–		–	–	–
Stock-based compensation	–	–	–	–	–	–	92	–	92
Net loss	–	–	–	–	–	–	–	(7,355)	(7,355)
Balance as of June 30, 2019	28,000,000	$27,813	–	$ –	5,000,000	$ 1	$ 503	$ (25,569)	$ (25,065)
Balance as of January 1, 2020	28,000,000	$27,813	–	$ –	5,000,000	$ 1	$ 664	$ (31,302)	$ (30,637)
Issuance of Series B redeemable convertible preferred stock, net of issuance costs of $352	–	–	36,666,665	43,648	–	–	–	–	–
Exercise of common stock options	–	–	–	–	46,875	–	8	–	8
Stock-based compensation	–	–	–	–	–	–	128	–	128
Net loss	–	–	–	–	–	–	–	(11,614)	(11,614)
Balance as of June 30, 2020	28,000,000	$27,813	36,666,665	$43,648	5,046,875	$ 1	$ 800	$ (42,916)	$ (42,115)

See accompanying notes to the condensed financial statements.

SPRUCE BIOSCIENCES, INC.
CONDENSED STATEMENTS OF CASH FLOWS
(unaudited)
(in thousands)

	Six Months Ended June 30,	
	2019	2020
Cash flows from operating activities		
Net loss	$(7,355)	$ (11,614)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	1	18
Stock-based compensation	92	128
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(377)	(1,150)
Accounts payable and accrued expenses	(747)	2,256
Accrued compensation and benefits	(44)	(398)
Other assets	–	36
Other liabilities	–	68
Net cash used in operating activities	(8,430)	(10,656)
Cash flows from investing activities		
Purchase of property and equipment	(3)	(7)
Net cash used in investing activities	(3)	(7)
Cash flows from financing activities		
Proceeds from issuance of Series A redeemable convertible preferred stock, net of issuance costs	7,941	–
Proceeds from issuance of Series B redeemable convertible preferred stock, net of issuance costs	–	43,648
Payment of deferred offering costs	–	(100)
Proceeds from exercise of common stock options	–	8
Net cash provided by financing activities	7,941	43,556
Net increase (decrease) in cash, cash equivalents and restricted cash	(492)	32,893
Cash, cash equivalents, and restricted cash at beginning of period	4,112	3,924
Cash, cash equivalents, and restricted cash at end of period	$ 3,620	$ 36,817
Supplemental cash flow data:		
Cash paid for interest	$ –	$ 95
Supplemental disclosure of non-cash investing and financing activities:		
Property and equipment included in accounts payable	$ –	$ 30
Deferred offering costs included in accrued expenses	$ –	$ 135

See accompanying notes to the condensed financial statements.

SPRUCE BIOSCIENCES, INC.
NOTES TO THE CONDENSED FINANCIAL STATEMENTS
(unaudited)

1. Organization and Principal Activities

Description of Business

Spruce Biosciences, Inc. (the Company) is a late-stage biopharmaceutical company focused on developing and commercializing novel therapies for rare endocrine disorders with significant unmet medical need. The Company is initially developing its wholly-owned product candidate, tildacerfont, as the potential first non-steroidal therapy to offer markedly improved disease control and reduce steroid burden for adult patients suffering from classic congenital adrenal hyperplasia (CAH). The Company is located in Daly City, California and was incorporated in the state of Delaware in April 2016.

Liquidity and Capital Resources

The Company has incurred significant losses and negative cash flows from operations. During the six months ended June 30, 2020, the Company incurred a net loss of $11.6 million and used $10.7 million of cash in operations. As of June 30, 2020, the Company had an accumulated deficit of $42.9 million and does not expect positive cash flows from operations in the foreseeable future. In recent years, the Company has funded its operations primarily through the issuance and sale of redeemable convertible preferred stock and debt. As of June 30, 2020, the Company had cash and cash equivalents of $36.6 million. In February 2020 the Company issued and sold 36,666,665 shares of Series B redeemable convertible preferred stock (Series B preferred stock) for approximately $43.6 million in net proceeds. In August 2020 the Company issued and sold an additional 36,666,665 shares of Series B preferred stock for approximately $44.0 million in net proceeds.

The Company anticipates that it will need to raise substantial additional financing in the future to fund its operations. In order to meet these additional cash requirements, the Company may seek to sell additional equity or issue debt, convertible debt or other securities that may result in dilution to its stockholders. If the Company raises additional funds through the issuance of debt or convertible debt securities, these securities could have rights senior to those of its shares of redeemable convertible preferred stock and shares of common stock and could contain covenants that restrict its operations. There can be no assurance that the Company will be able to obtain additional equity or debt financing on terms acceptable to it, if at all. Debt financing, if available, would result in increased fixed payment obligations and may involve agreements that include covenants limiting or restricting the Company's ability to take specific actions such as incurring debt, making capital expenditures or declaring dividends. The Company's failure to obtain sufficient funds on acceptable terms when needed could have a material adverse effect on its business, results of operations, and financial condition.

2. Summary of Significant Accounting Policies

Interim condensed financial statements

The financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) and applicable rules and regulations of the U.S. Securities and Exchange Commission (SEC) for interim reporting. As permitted under those rules and regulations, certain footnotes or other financial information normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted. The interim condensed financial statements have been prepared on the same basis as the annual financial statements and, in the opinion of management, reflect all adjustments, which include only normal, recurring adjustments that are necessary to present fairly the Company's results for the interim periods presented. The condensed balance sheet as of December 31, 2019, is derived from the Company's audited financial statements included elsewhere in this prospectus. The results of operations for the six

months ended June 30, 2020, are not necessarily indicative of the results to be expected for the year ending December 31, 2020, or for any other future annual or interim period. These interim condensed financial statements should be read in conjunction with the Company's audited financial statements included elsewhere in this prospectus.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities and expenses as well as related disclosure of contingent assets and liabilities. Significant estimates and assumptions reflected in these financial statements include, but are not limited to, accrued research and development expenses, valuation of common stock and stock-based compensation, valuation of warrants and income tax and uncertain tax positions. The Company bases its estimates on its historical experience and on assumptions that it believes are reasonable; however, actual results could significantly differ from those estimates.

Pro Forma Financial Information

Immediately prior to the closing of an initial public offering (IPO) in which (i) the gross proceeds to the Company are at least $50.0 million, (ii) the price per share in the IPO is at least $2.40 (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization), and (iii) the Company's shares have been listed for trading on the New York Stock Exchange, Nasdaq Global Select Market or Nasdaq Global Market, or upon the affirmative election of the holders of a majority shares of then-outstanding shares of redeemable convertible preferred stock, voting together as a single class on an as-converted basis, which majority must include the approval of certain holders of Series B preferred stock, then all outstanding shares of redeemable convertible preferred stock will convert into common stock. Pro forma balance sheet information as of June 30, 2020 assumes the conversion of all outstanding redeemable convertible preferred stock into shares of common stock. The shares of common stock issuable and the proceeds expected to be received in the initial public offering are excluded from such pro forma financial information. Pro forma basic and diluted net loss per share has been computed to give effect to the automatic conversion of all outstanding redeemable convertible preferred stock into 64,666,665 shares of the Company's common stock. The pro forma net loss per share does not include the shares expected to be sold and related proceeds to be received from an IPO. The pro forma net loss per share for the six months ended June 30, 2020 was computed using the weighted-average number of shares of common stock outstanding, including the pro forma effect of the conversion of all outstanding shares of redeemable convertible preferred stock, as if such automatic conversion had occurred at the beginning of the period, or their issuance dates, if later.

Deferred Offering Costs

The Company capitalizes within other assets certain legal, accounting and other third-party fees that are directly related to the Company's in-process equity financings, including the planned IPO, until such financings are consummated. After consummation of the equity financing, these costs are recorded as a reduction of the proceeds received as a result of the offering. Should a planned equity financing be abandoned, terminated or significantly delayed, the deferred offering costs are immediately written off to operating expenses. Deferred offering costs for the six months ended June 30, 2020 were $0.2 million. There were no deferred offering costs for the period ended June 30, 2019.

Risks and Uncertainties

Any product candidates developed by the Company will require approvals from the U.S. Food and Drug Administration (FDA) or foreign regulatory agencies prior to commercial sales. There can be no assurance that the Company's current and future product candidates will meet desired efficacy and safety requirements to obtain the necessary approvals. If approval is denied or delayed, it may have a material adverse impact on the Company's business and its financial statements.

The Company is subject to a number of risks similar to other late-stage biopharmaceutical companies including, but not limited to, dependency on the clinical and commercial success of the Company's product candidate, tildacerfont, ability to obtain regulatory approval of tildacerfont, the need for substantial additional financing to achieve its goals, uncertainty of broad adoption of its approved products, if any, by physicians and consumers, significant competition and untested manufacturing capabilities, and dependence on key individuals and sole source suppliers.

The Company's business has been and could continue to be adversely affected by the evolving COVID-19 pandemic. For example, the COVID-19 pandemic has resulted in and could result in delays to the Company's clinical trials for numerous reasons including additional delays or difficulties in enrolling patients, diversion of healthcare resources away from the conduct of clinical trials, interruption or delays in the operations of the FDA or other regulatory authorities, and delays in clinical sites receiving the supplies and materials to conduct our clinical trials. At this time, the extent to which the COVID-19 pandemic impacts the Company's business will depend on future developments, which are highly uncertain and cannot be predicted.

Segment Reporting

The Company operates and manages its business as one operating segment, which is the business of designing and developing novel therapies for rare endocrine disorders. The Company's chief executive officer, who is the chief operating decision maker, reviews financial information on an aggregate basis for allocating and evaluating financial performance. All long-lived assets are maintained in the United States of America.

Cash and Cash Equivalents

The Company considers all highly liquid investments with remaining maturities at the date of purchase of three months or less to be cash equivalents. Cash equivalents consist of amounts invested in money market funds.

Restricted Cash

The Company has cash in a collateral account related to a letter of credit issued on behalf of the Company for the security deposit on the non-cancelable operating lease for an office facility. The collateralized cash in connection with the letter of credit was classified as restricted cash on the balance sheet as of June 30, 2020 based on the terms of the lease agreement, which expires in 2025, unless extended.

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the condensed statements of cash flows (in thousands):

	June 30,	
	2019	2020
Cash and cash equivalents	$ 3,620	$ 36,601
Restricted cash	–	216
Total cash, cash equivalents and restricted cash	$ 3,620	$ 36,817

Concentration of Credit Risk

Financial instruments, which potentially subject the Company to significant concentration of credit risk, consist primarily of cash and cash equivalents. The Company maintains deposits in federally insured financial institutions in excess of federally insured limits. The Company is exposed to credit risk in the event of default by the financial institutions holding its cash and cash equivalents to the extent recorded in the balance sheet. The Company has not experienced any losses in such accounts and

management believes that the Company is not exposed to significant credit risk due to the financial position of the depository institutions in which those deposits are held.

Leases

The Company adopted ASU, No. 2016-02, *Leases* (Topic 842) effective January 1, 2020.

The Company determines if an arrangement includes a lease at inception. Right-of-use assets and lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at the commencement date. The right-of-use asset includes any lease payments made and excludes lease incentives. Incremental borrowing rate is used in determining the present value of future payments. The Company utilizes its incremental borrowing rate, which is the rate incurred to borrow on a collateralized basis over a similar term an amount equal to the lease payments in a similar economic environment. The lease terms may include options to extend or terminate the lease. Lease expense for minimum lease payments is recognized on a straight-line basis over the non-cancelable lease term. The Company has elected not to recognize a right-of-use asset and lease liability for short-term leases. A short-term lease is a lease with an expected lease term of 12 months or less and which does not include an option to purchase the underlying asset that the lessee is reasonably certain to exercise. The Company also elected the package of practical expedients under the transition guidance that will retain the historical lease classification and initial direct costs for any leases that exist prior to adoption of the new guidance and the practical expedient to not separate lease and non-lease components. Prior period amounts have not been adjusted and continue to be reported in accordance with the Company's historical accounting under previous lease guidance, ASC 840, *Leases* (Topic 840). See Note 8 for further disclosure.

During 2019, leases were accounted for under Accounting Standards Codification (ASC) 840, *Leases*, and classified as operating leases. The Company's operating lease agreements include scheduled rent escalations over the lease term. During 2019, rent expense was charged ratably on a straight-line basis over the life of the lease from the date the Company obtains the legal right to use and control the leased space.

Redeemable Convertible Preferred Stock

The Company records redeemable convertible preferred stock at fair value on the dates of issuance, net of issuance costs. Upon the occurrence of certain events that are outside the Company's control, including a deemed liquidation event such as a merger, acquisition and sale of all or substantially all of the Company's assets, holders of the redeemable convertible preferred stock can cause redemption for cash. Therefore, redeemable convertible preferred stock is classified as temporary equity (mezzanine) on the balance sheet as events triggering the liquidation preferences are not solely within the Company's control. The carrying values of the redeemable convertible preferred stock are adjusted to their liquidation preferences if and when it becomes probable that such a liquidation event will occur.

Research and Development Expenses

Research and development costs are expensed as incurred. Research and development expenses include personnel costs related to research and development activities, materials costs, external clinical drug product manufacturing costs, outside services costs, repair, maintenance and depreciation costs for research and development equipment, as well as facility costs for laboratory space used for research and development activities. Assets acquired that are utilized in research and development that have no alternative future use are also expensed as incurred.

Accrued Research and Development Expenses

Clinical trial costs are charged to research and development expense as incurred. The Company accrues for expenses resulting from contracts with clinical research organizations (CROs), consultants, and clinical site agreements in connection with conducting clinical trials. The financial terms of these contracts are subject to negotiations, which vary from contract to contract and may result in payment flows that do not match the periods over which materials or services are provided to us under such contracts. The objective is to reflect the appropriate expense in the financial statements by matching the appropriate expenses with the period in which services and efforts are expended. In the event advance payments are made to a CRO, the payments will be recorded as a prepaid expense, which will be expensed as services are rendered. Payments made to third parties under these arrangements in advance of the performance of the related services by the third parties are recorded as prepaid expenses until the services are rendered. Payments associated with licensing agreements to acquire exclusive licenses to develop, use, manufacture and commercialize products that have not reached technological feasibility and do not have alternate commercial use are expensed as incurred.

The CRO contracts generally include pass-through fees including, but not limited to, regulatory expenses, investigator fees, travel costs and other miscellaneous costs. The Company determines accrual estimates through reports from and discussion with clinical personnel and outside services providers as to the progress or state of completion of trials, or the services completed. The Company estimates accrued expenses as of each balance sheet date based on the facts and circumstances known at that time. The clinical trial accrual is dependent, in part, upon the receipt of timely and accurate reporting from the CROs and other third-party vendors.

If the actual timing of the performance of services or the level of effort varies from the original estimates, the Company will adjust the accrual accordingly. Payments associated with licensing agreements to acquire exclusive licenses to develop, use, manufacture and commercialize products that have not reached technological feasibility and do not have alternate commercial use are expensed as incurred. Payments made to third parties under these arrangements in advance of the performance of the related services by the third parties are recorded as prepaid expenses until the services are rendered.

Patent Costs

Costs related to filing and pursuing patent applications are expensed as incurred, as recoverability of such expenditures is uncertain. These costs are included in general and administrative expenses and were immaterial for each of the periods presented.

Stock-Based Compensation

The Company has an equity incentive plan under which various types of equity-based awards including, but not limited to, incentive stock options, non-qualified stock options, and restricted stock awards, may be granted to employees, non-employee directors, and non-employee consultants.

For equity awards granted to employees and directors, the Company recognizes compensation expense based on the estimated grant-date fair values. The fair value of stock options is determined using the Black-Scholes option pricing model. The Company recognizes compensation expense for stock option awards on a straight-line basis over the requisite service period of the award, generally four years. Forfeitures are recorded as they occur.

Stock-based compensation expense related to stock options granted to nonemployees is recognized based on the fair value of the stock options, determined using the Black-Scholes option pricing model, as they are earned. The awards generally vest over the time period the Company expects to receive services from the nonemployee. Non-employee stock-based compensation expense was not material in any period presented.

The Company's determination of the fair value of stock options with time-based vesting on the date of grant utilizes the Black-Scholes option-pricing model, and is impacted by its common stock price as well as other variables including, but not limited to, expected term that options will remain outstanding, expected common stock price volatility over the term of the option awards, risk-free interest rates and expected dividends. The fair value of a stock-based award is recognized over the period during which an optionee is required to provide services in exchange for the option award, known as the requisite service period (usually the vesting period) on a straight-line basis. Stock-based compensation expense is recognized based on the fair value determined on the date of grant and is reduced for forfeitures as they occur.

Fair Value of Financial Instruments

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability, or an exit price, in the principal or most advantageous market for that asset or liability in an orderly transaction between market participants on the measurement date. Fair value measurement establishes a fair value hierarchy that requires an entity to maximize the use of observable inputs, where available, and minimize the use of unobservable inputs when measuring fair value.

The Company determined the fair value of financial assets and liabilities using the fair value hierarchy that describes three levels of inputs that may be used to measure fair value, as follows:

- Level 1—Quoted prices in active markets for identical assets and liabilities;
- Level 2—Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The Company's financial instruments primarily consist of cash and cash equivalents, prepaid expenses, accounts payable, and accrued expenses. The carrying value of these financial instruments are generally considered to be representative of their respective fair values because of the short-term nature of those instruments.

Net Loss per Share

Basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period, without consideration for potentially dilutive securities. Diluted net loss per share attributable to common stockholders is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common stock and potentially dilutive securities outstanding for the period. For purposes of the diluted net loss per share calculation, redeemable convertible preferred stock, stock options, and common stock warrants are considered to be potentially dilutive securities. Basic and diluted net loss attributable to common stockholders per share is presented in conformity with the two-class method required for participating securities as the redeemable convertible preferred stock is considered a participating security because it participates in dividends with common stock. The holders of all series of redeemable convertible preferred stock do not have a contractual obligation to share in the Company's losses. As such, the net loss was attributed entirely to common stockholders. Because the Company has reported a net loss for all periods presented, diluted net loss per share is the same as basic net loss per share for those periods.

Commitments and Contingencies

From time to time, the Company may have certain contingent liabilities that arise in the ordinary course of business. The Company evaluates the likelihood of an unfavorable outcome in legal or regulatory proceedings to which it is a party and records a loss contingency on an undiscounted basis when it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. These judgments are subjective and based on the status of such legal proceedings, the merits of the Company's defenses, and consultation with legal counsel. Actual outcomes of these legal proceedings may differ materially from the Company's estimates. The Company estimates accruals for legal expenses when incurred as of each balance sheet date based on the facts and circumstances known to the Company at that time.

Recently Adopted Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board (FASB) issued ASU 2016-02, *Leases*. ASU 2016-02 requires a lessee to recognize right of use asset and lease liability for all leases with lease terms of more than 12 months, along with additional qualitative and quantitative disclosures. ASU 2016-02 is effective for the Company beginning January 1, 2022, with early adoption permitted. Companies may adopt this guidance using a modified retrospective approach for leases that exist or are entered into after the beginning of the earliest comparative period in the financial statements. In July 2018, the FASB issued ASU No. 2018-11, *Leases* (Topic 842): Targeted Improvements, which provides the option of an additional transition method that allows entities to initially apply the new lease guidance at the adoption date and recognize a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption, rather than as of the earliest period presented. The Company elected this transition method and adopted ASC 842 on January 1, 2020. The Company also elected the package of practical expedients under the transition guidance that will retain the historical lease classification and initial direct costs for any leases that exist prior to adoption of the new guidance and the practical expedient to not separate lease and nonlease components. The adoption did not have any impact on the Company's financial statements since the Company did not have any leases subject to the scope of the Topic 842 upon adoption. See Note 8 for further disclosure.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820).* This new guidance removes, modifies and adds to certain disclosure requirements on fair value measurements in Topic 820. This new guidance became effective for all entities for fiscal years beginning after December 15, 2019 and accordingly, the Company adopted ASU 2018-13 as of January 1, 2020. The adoption did not have any impact on the Company's financial statements as of and for the period ended June 30, 2020.

3. Fair Value Measurements

The carrying amounts of cash equivalents approximate their fair value based upon quoted market prices. Certain of the Company's financial instruments are not measured at fair value on a recurring basis but are recorded at amounts that approximate their fair value due to their liquid or short-term nature, such as cash, prepaid expenses, accounts payable and accrued expenses. The Company did not have any financial assets measured nor liabilities recorded at fair value on a recurring or non-recurring basis as of December 31, 2019 and June 30, 2020.

The estimated fair value of our term loan was $4.7 million as of June 30, 2020 and was based on estimated interest rates currently available to the Company for debt with similar terms, a Level 3 input.

4. Term Loan

In September 2019, the Company entered into a Loan and Security Agreement (the Loan Agreement) with Silicon Valley Bank (SVB) providing for a term loan (the Term Loan). In April 2020,

the Company and SVB entered into an agreement (the Deferral Agreement) whereby the parties agreed to extend the Interest-Only Period (defined below), repayment dates of all monthly payments of principal due and the maturity date with respect to the Term Loan by six months. All other terms of the Term Loan remained unchanged. The Deferral Agreement was determined to be a debt modification, resulting in a prospective yield adjustment based on the revised terms.

Pursuant to the Loan Agreement, the Company had the ability to request up to $4.5 million of borrowings in two tranches of term loans. In September 2019, the Company requested $2.5 million from the first tranche (the First Tranche) in connection with the entry into the Loan Agreement. The Loan Agreement provided the option to request an additional $2.0 million (the Second Tranche), after the Company reached certain borrowing conditions as stipulated in the Loan Agreement. The Company satisfied these conditions and drew the Second Tranche of $2.0 million in December 2019. Pursuant to the Deferral Agreement, principal payments shall commence in January 2021 and the Term Loan will mature in September 2022.

Outstanding principal balances under the Term Loan bear interest at a floating per annum rate equal to the greatest of: (i) 1% below the prime rate, (ii) 4.25%, or (iii) 1% below the prime rate as of September 23, 2019. Under the Term Loan, as amended by the Deferral Agreement, the Company is required to make monthly payments of interest only commencing on the first day of the month following the funding date of each respective tranche and continuing thereafter through December 31, 2020 (the Interest-Only Period). Following the Interest-Only Period, the outstanding Term Loan balance will be payable in (i) 21 consecutive equal monthly payments of principal beginning on the first day of the calendar month after the end of the Interest-Only Period and continuing on the same day of each month thereafter, in amounts that would fully amortize such note balance, as of January 1, 2021, over the repayment period, plus (ii) monthly payments of accrued but unpaid interest. The final payment due on the maturity date shall include all outstanding principal and all accrued unpaid interest and an End of Term Payment totaling 6% of the combined principal amount of the First and Second Tranches, or $0.3 million. The End of Term Payment is being accrued through interest expense using the effective interest method.

The Company may prepay amounts outstanding under the Term Loan at any time provided certain notification conditions are met, in which case, all outstanding principal plus accrued and unpaid interest, the End of Term Payment, a prepayment fee between 1% and 3% of the principal amount of the First and Second Tranches, and any bank expenses become due and payable.

In connection with the First and Second Tranches under the Loan Agreement, the Company issued a warrant to purchase up to an aggregate 324,499 shares of common stock at $0.22 per share. The Company determined the initial fair value of the warrant to be $0.1 million using the Black-Scholes option-pricing model. The fair value of the warrant was recorded to equity and as a debt discount, which is amortized to interest expense using the effective interest method over the term of the Term Loan.

The Company incurred $0.01 million of debt issuance costs in connection with the Term Loan, which is being amortized using the effective interest method over the life of the Term Loan. The unamortized debt discount balance was $0.03 million as of June 30, 2020.

The Term Loan and unamortized discount and debt issuance costs balances as of June 30, 2020 are shown below (in thousands):

	June 30, 2020
Total Term Loan debt	$ 4,500
Less: unamortized discount and debt issuance costs	(37)
Total Term Loan, net	4,463
Less: Term Loan, current portion	(1,263)
Term loan, net of current portion	$ 3,200

The Company is subject to customary affirmative and restrictive covenants under the Loan Agreement. The Company's obligations under the Loan Agreement are secured by a first priority security interest in substantially all of its current and future assets, other than intellectual property. The Company also agreed not to encumber its intellectual property assets, except as permitted by the Loan Agreement.

The Loan Agreement also contains customary indemnification obligations and customary events of default, including, among other things, the Company's failure to fulfill certain obligations under the Loan Agreement and the occurrence of a material adverse change in its business, operations, or condition (financial or otherwise), a material impairment of the prospect of repayment of any portion of the loan, or a material impairment in the perfection or priority of lender's lien in the collateral or in the value of such collateral. In the event of default by the Company under the Loan Agreement, the lender would be entitled to exercise their remedies thereunder, including the right to accelerate the debt, upon which the Company may be required to repay all amounts then outstanding under the Loan Agreement. As of June 30, 2020, management believes that the Company was in compliance with all financial covenants under the Loan Agreement and there had been no material adverse change.

As of June 30, 2020, future principal payments per year under the Term Loan are as follows (in thousands):

Remainder of 2020	$ –
2021	2,571
2022	1,929
Total	$ 4,500

The Company made interest payments on the Term Loan of $0.1 million during the six months ended June 30, 2020.

5. Capital Structure

Common Stock

As of December 31, 2019 and June 30, 2020, the Company was authorized to issue 41,000,000 and 130,518,922 shares of $0.0001 par value common stock, respectively. Common stockholders are entitled to dividends if and when declared by the Board of Directors of the Company (Board of Directors) and after any convertible preferred share dividends are fully paid. The holder of each share of common stock is entitled to one vote. As of June 30, 2020, no dividends were declared.

Shares reserved for future issuance

Common stock reserved for future issuance, on an as converted basis, consisted of the following:

	December 31, 2019	June 30, 2020
Series A redeemable convertible preferred stock	28,000,000	28,000,000
Series B redeemable convertible preferred stock	–	36,666,665
Stock options outstanding	5,620,906	9,563,822
Common stock warrant	324,499	324,499
Total shares reserved	33,945,405	74,554,986

Redeemable Convertible Preferred Stock

In May 2016, the Company issued and sold 20,000,000 shares of Series A redeemable convertible preferred stock (Series A preferred stock) at $1.0000 per share for aggregate proceeds of $20.0 million. In February 2019, the Company issued and sold an additional 8,000,000 shares of Series A preferred stock at $1.0000 per share for aggregate proceeds of $8.0 million. In February 2020, the Company agreed to issue and sell up to 73,333,330 shares of Series B preferred stock at $1.20 per share for aggregate proceeds of $88.0 million (the Series B Financing) to take place in two closings. In February 2020, pursuant to the initial closing of the Series B Financing, the Company issued and sold 36,666,665 shares of Series B preferred stock at $1.20 per share for aggregate net proceeds of $43.6 million.

Issued and outstanding redeemable convertible preferred stock as of December 31, 2019, and its principal terms during the year then ended were as follows (in thousands, except share and per share amounts):

	Shares Authorized	Shares Issued and Outstanding	Original Issue Price Per Share	Aggregate Liquidation Amount	Net Carrying Value
Series A	28,000,000	28,000,000	$ 1.0000	$ 28,000	$ 27,813

Issued and outstanding redeemable convertible preferred stock as of June 30, 2020, and its principal terms during the year then ended were as follows (in thousands, except share and per share amounts):

	Shares Authorized	Shares Issued and Outstanding	Original Issue Price Per Share	Aggregate Liquidation Amount	Net Carrying Value
Series A	28,000,000	28,000,000	$ 1.0000	$ 28,000	$ 27,813
Series B	73,333,330	36,666,665	$ 1.2000	$ 44,000	$ 43,648

The holders of redeemable convertible preferred stock have various rights and preferences, including the following:

Liquidation Preference

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or deemed liquidation event, the holders of redeemable convertible preferred stock shall be entitled to be paid out of the assets of the Company, prior and in preference to any distribution to the holders of common stock, an amount equal to the original issuance price, meaning $1.00 per share for each share of Series A preferred stock and $1.20 per share for each share of Series B preferred stock, plus all declared but unpaid dividends, if any.

If the assets available for distribution to stockholders are insufficient to pay the holders of shares of the redeemable convertible preferred stock the full amount to which they are entitled, then the entire assets of the Company legally available for distribution will be distributed ratably among the holders of redeemable convertible preferred stock in proportion to the respective amounts each such holder is otherwise entitled to receive.

After the payment to the holders of redeemable convertible preferred stock of the full preferential amount specified above, any remaining assets shall be distributed pro rata to the holders of redeemable convertible preferred stock and common stock based upon the respective shares of common stock held by each holder (assuming conversion of all such redeemable convertible preferred stock into common stock). The redeemable convertible preferred stockholders are entitled to receive the greater of the maximum participation amount, meaning $4.00 per share for each share of Series A preferred stock and $4.80 per share for each share of Series B preferred stock, or the amount they would have received if all shares of redeemable convertible preferred stock were converted into common stock immediately prior to such liquidation, dissolution, or wind up.

Conversion

The shares of redeemable convertible preferred stock are convertible into such number of shares of common stock as is determined by dividing the original issue price by the applicable conversion price in effect at the time of conversion, at the option of the holder. The conversion price shall initially be equal to $1.00 per share for each share of Series A preferred stock and $1.20 per share for each share of Series B preferred stock, subject to certain anti-dilution adjustments. Additionally, each share of redeemable convertible preferred stock is automatically converted into common stock (i) immediately prior to the closing of the Company's sale of its common stock in a firm commitment underwritten public offering pursuant to a registration statement under the Securities Act of 1933, as amended, in which (a) the gross cash proceeds to the Corporation (before underwriting discounts, commissions and fees) are at least $50.0 million, (b) the price per share in the public offering is at least $2.40 per share, and (c) the Company's shares have been listed for trading on the New York Stock Exchange, Nasdaq Global Select Market or Nasdaq Global Market, or (ii) upon the affirmative election of the holders of a majority shares of then-outstanding shares of redeemable convertible preferred stock, voting together as a single class on an as-converted basis, which majority must include the approval of certain holders of Series B preferred stock.

The Company has a right to issue and the holders of Series B preferred stock have an obligation to purchase 36,666,665 shares of Series B preferred stock under the same conditions and terms as the initial offering as part of the secondary closing of the Series B preferred stock. The Series B Stock Purchase Agreement and the Company's Amended and Restated Certificate of Incorporation contain a special mandatory conversion provision which converts shares of Series B preferred stock into common stock at a ratio of one share of common stock for each ten shares of Series B preferred stock if the holder of Series B preferred stock does not participate in the Series B secondary closing based on the fully allotted amount in the Series B Stock Purchase Agreement.

Voting

The holders of redeemable convertible preferred stock are entitled to one vote for each share of common stock into which such redeemable convertible preferred stock could then be converted; and with respect to such vote, such holders have full voting rights and powers equal to the voting rights and powers of the holders of common stock in addition to certain separate voting requirements in favor of the holders of Series A preferred stock and Series B preferred stock.

The holders of Series A preferred stock, voting as a separate class, are entitled to elect two directors to the Board of Directors. The holders of Series B preferred stock, voting as a separate class,

are entitled to elect three directors to the Board of Directors. The holders of common stock, voting as a separate class, are entitled to elect one director to the Board of Directors. All common and redeemable convertible preferred stockholders, voting together as a single class on an as-converted basis, are entitled to elect the balance of the total number of directors to the Board of Directors.

Dividends

The holders of the Series B preferred stock shall be entitled to receive non-cumulative dividends at an annual rate of 8% of the original issue price of $1.20 per share of the Series B preferred stock when and if declared by the Board of Directors and in preference to any dividends paid to the holders of any other class or series of redeemable convertible preferred stock or common stock. After payment of such Series B preferred stock dividend, the holders of Series A preferred stock shall be entitled to receive non-cumulative dividends at an annual rate of 8% of the original issue price of $1.00 per share of Series A preferred stock when and if declared by the Board of Directors and in preference to any dividends paid to the holders of common stock. After payment of such Series A preferred stock dividends and Series B preferred stock dividends, any additional dividends shall be distributed among the holders of redeemable convertible preferred stock and common stock on a pro rata basis based upon the respective shares of common stock held by each holder (assuming conversion of all such redeemable convertible preferred stock into common stock). No dividends were declared in the six months ended June 30, 2019 and 2020.

6. Equity Incentive Plan and Stock-Based Compensation Expense

Stock Options

The Company's 2016 Stock Plan was originally adopted on April 8, 2016, and most recently amended on October 14, 2016 and February 19, 2020 (as restated, the Plan). The Plan allows the Company to grant restricted stock units, restricted stock and stock options to employees and consultants of the Company, and to the members of the Board of Directors. Options granted under the Plan may be either incentive stock options (ISO) or nonqualified stock options (NSO). ISOs may only be granted to employees of the Company (including officers and directors who are also employees). NSOs may be granted to any person eligible for grants under the Plan.

Under the Plan, the Board of Directors determines the per share exercise price of each stock option, which for ISOs shall not be less than 100% of the fair market value of a share on the date of grant; provided that the exercise price of an ISO granted to a stockholder who at the time of grant owns stock representing more than 10% of the voting power of all classes of stock (a 10% stockholder) shall not be less than 110% of the fair market value of a share on the date of grant.

The Board of Directors determines the period over which options vest and become exercisable. Options granted to new employees generally vest over a four-year period: 25% of the shares vest on the first anniversary from the vesting commencement date of the option and an additional 1/48th of the shares vest on each monthly anniversary thereafter, subject to the employee's continuous service through each vesting date.

The Board of Directors also determines the term of options, provided the maximum term for ISOs granted to a 10% stockholder must be no longer than five years from date of grant and the maximum term for all other options must be no longer than ten years from date of grant. If an option holder's service terminates, options generally terminate three months from the date of termination except under certain circumstances, such as death or disability.

Under the Plan, individuals can be granted the ability to early exercise their options. There were no shares, related to the early exercise of options, subject to repurchase by the Company as of June 30, 2020.

A summary of the Company's stock option activity and related information is as follows (in thousands, except share and per share amounts):

	Outstanding Stock Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life (Years)	Aggregate Intrinsic Value
Balance as of December 31, 2019	5,620,906	$ 0.18	7.9	$ 209
Granted	4,620,000	0.25	–	–
Exercised	(46,875)	0.18	–	–
Forfeited/Cancelled	(630,209)	0.19	–	–
Balance as of June 30, 2020	9,563,822	$ 0.21	8.3	$ 2,442
Vested and expected to vest as of June 30, 2020	9,213,822	$ 0.21	8.2	$ 2,365
Vested and exercisable as of June 30, 2020	3,137,916	$ 0.17	5.3	$ 934

Stock options vested and expected to vest differs from total stock options outstanding as it excludes performance-based stock options for which the performance criteria has not been achieved and achievement is not expected as of June 30, 2020.

The aggregate intrinsic values of options outstanding and exercisable were calculated as the difference between the exercise price of the options and the estimated fair value of the Company's common stock as determined by the Company's Board of Directors as of December 31, 2019 and June 30, 2020. The total intrinsic value of options exercised was immaterial for the six months ended June 30, 2020.

Total shares authorized for issuance as of June 30, 2020 was 17,645,906 shares and 8,035,209 shares remained available for issuance under the Plan.

For the six months ended June 30, 2019 and 2020, the weighted-average fair value of options granted was $0.13 and $0.17 per share, respectively. The total fair value of options vested during the six months ended June 30, 2019 and 2020 was $37 and $145 thousand, respectively.

Total Stock-Based Compensation

Total stock-based compensation expense related to options granted to employees and nonemployees was allocated as follows during the six months ended June 30, 2019 and 2020 (in thousands):

	Six Months Ended June 30,	
	2019	2020
Research and development	$ 52	$ 49
General and administrative	40	79
Total stock-based compensation expense	$ 92	$ 128

Unrecognized stock-based compensation expense as of June 30, 2020 was approximately $1.0 million, which is expected to be recognized over a weighted-average vesting term of 3.4 years.

7. License Agreement

In May 2016, the Company entered into a license agreement (the License Agreement), with Eli Lilly and Company (Lilly). Pursuant to the terms of the License Agreement, Lilly granted the Company an

exclusive, worldwide, royalty bearing, sublicensable license under certain technology, patent rights, know-how and proprietary materials related to certain compounds, to research, develop, and commercialize such compounds for all pharmaceutical uses.

As partial consideration for the rights granted to the Company under the License Agreement, the Company made a one-time upfront payment to Lilly of $0.8 million during the year ended December 31, 2016, which was recorded as research and development expense as there was no alternative use due to the early stage of the technology. The Company is also required to pay Lilly up to an aggregate of $23.0 million upon the achievement of certain clinical and commercialization milestones. In addition, the Company is required to pay Lilly tiered royalties on annual worldwide net sales with rates ranging from mid-single-digits to sub-teens. No additional amounts were paid by the Company to Lilly during the fiscal years ended December 31, 2018 and 2019 or were due as of such dates pursuant to the License Agreement.

The License Agreement will remain in effect, unless earlier terminated, until the expiration of the royalty payment obligations. Royalties are payable on a product-by-product and country-by-country basis from the first commercial sale of the product until the later of (i) the tenth anniversary of the date of first commercial sale in such country, (ii) the expiration in such country of the last-to-expire licensed patent having a valid claim covering the manufacture, use or sale of the licensed product as commercialized in such country, and (iii) the expiration of any data or regulatory exclusivity period for the licensed product in such country.

8. Commitments and Contingencies

Leases

The Company leases space under non-cancelable operating leases which require the Company to pay base rent, real estate taxes, insurance, general repairs and maintenance. The Company does not have finance leases. As described in Note 2, the Company adopted Topic 842 as of January 1, 2020.

In February 2019, the Company entered into a short-term lease for office space with a commencement date of March 2019. Total gross commitments over the 12-month term were approximately $0.2 million. In February 2020, the Company extended the lease for an additional three months for a total of $42 thousand in additional commitments. The lease was terminated in May 2020.

Rent expense for the six months ended June 30, 2019 was recognized under prior Topic 840 and amounted to approximately $0.1 million. Short-term lease expense for the six months ended June 30, 2020 was approximately $0.1 million.

In February 2020, the Company entered into a non-cancelable operating lease for office space. The commencement date was delayed due to the COVID-19 pandemic and a new commencement date is uncertain as of the date of these financial statements. The monthly payments escalate over the 63-month term with total gross commitments of approximately $2.3 million. The lease includes an option to renew the lease term for an additional period of 60 months. The renewal option is not included in the lease term or minimum lease payments disclosures below as the Company is not reasonably certain to exercise the option. Lease incentives, which relate to rent abatement, will be considered in the calculation of the lease liability and right-of-use asset. There was no lease expense related to this lease for the six months ended June 30, 2020, as the lease has not commenced as of June 30, 2020.

Future minimum annual lease commitments under the non-cancelable operating lease are $2.3 million to be paid over the 63-month term starting five months from the lease commencement date. The exact timing of the future minimum annual lease commitments will not be known until the commencement date is set.

Legal Matters

The Company's industry is characterized by frequent claims and litigation, including claims regarding intellectual property. As a result, the Company may be subject to various legal proceedings from time to time. The results of any future litigation cannot be predicted with certainty, and regardless of the outcome, litigation can have an adverse impact on the Company because of defense and settlement costs, diversion of management resources and other factors. Management is not aware of any pending or threatened litigation.

9. Net Loss, Net Loss Per Share and Pro Forma Net Loss Per Share

The following table sets forth the computation of the basic and diluted net loss per share (in thousands, except share and per share amounts):

	Six Months Ended June 30,	
	2019	2020
Numerator:		
Net Loss	$ (7,355)	$ (11,614)
Denominator:		
Weighted-averages common shares outstanding	5,000,000	5,013,908
Net loss per share, basic and diluted	$ (1.47)	$ (2.32)

Basic net loss per share was the same as diluted net loss per share for the six months ended June 30, 2019 and 2020, as the inclusion of potentially dilutive securities would have been anti-dilutive. Potentially dilutive securities were as follows:

	June 30,	
	2019	2020
Series A redeemable convertible preferred stock (on an if-converted basis)	28,000,000	28,000,000
Series B redeemable convertible preferred stock (on an if-converted basis)	–	36,666,665
Shares subject to outstanding common stock options	2,655,000	9,563,822
Shares subject to common stock warrants	–	324,499
	30,655,000	74,554,986

Pro Forma Basic and Diluted Net Loss Per Share

The following table sets forth the computation of the Company's pro forma basic and diluted net loss per share (in thousands, except share and per share amounts):

	Six Months Ended June 30, 2020
Numerator:	
Net Loss	$ (11,614)
Denominator:	
Weighted-averages common shares outstanding	5,013,908
Pro forma adjustment for assumed conversion of redeemable convertible preferred stock	54,794,871
Pro forma weighted-average shares of common stock outstanding	59,808,779
Net loss per share, basic and diluted	$ (0.19)

10. Subsequent Events

The Company has completed an evaluation of all subsequent events through August 7, 2020 to ensure that these financial statements include appropriate disclosure of events both recognized in the financial statements and events which occurred but were not recognized in the financial statements. The Company is unaware of any specific event or circumstance that would require it to update its estimates, judgments or revise the carrying value of its assets or liabilities. These estimates may change, as new events occur and as additional information related to the COVID-19 pandemic and other information is obtained, the impact of which would be recognized in the financial statements as soon as such information become known. Actual results could differ from those estimates and any such differences may be material to the Company's financial statements. Except as described below, the Company has concluded that no subsequent event has occurred that requires disclosure.

Series B Preferred Stock Financing

In August 2020, pursuant to a second closing of the Series B Financing, the Company issued and sold an additional 36,666,665 shares of Series B preferred stock for approximately $44.0 million in net proceeds.

Stock Option Grants

In August 2020, the Board of Directors approved the grant of options to purchase an aggregate 5,149,000 shares of common stock pursuant to the 2016 Stock Plan.

Shares

Common Stock

PROSPECTUS

Cowen **SVB Leerink** **Credit Suisse** **RBC Capital Markets**

, 2020

Until , 2020, all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This requirement is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Unless otherwise indicated, all references to “Spruce,” the “company,” “we,” “our,” “us” or similar terms refer to Spruce Biosciences, Inc.

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth all expenses to be paid by us, other than underwriting discounts and commissions, in connection with this offering. All amounts shown are estimates except for the Securities and Exchange Commission, or SEC, registration fee, the Financial Industry Regulatory Authority, Inc., or FINRA, filing fee and the exchange listing fee.

SEC registration fee	$ *
FINRA filing fee	*
Exchange listing fee	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees	*
Miscellaneous expenses	*
Total	$ *

* To be provided by amendment.

Item 14. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law authorizes a court to award, or a corporation’s board of directors to grant, indemnity to directors and officers in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities, including reimbursement for expenses incurred, arising under the Securities Act of 1933, as amended, or the Securities Act. Our amended and restated certificate of incorporation that will be in effect on the closing of this offering permits indemnification of our directors, officers, employees and other agents to the maximum extent permitted by the Delaware General Corporation Law, and our amended and restated bylaws that will be in effect on the closing of this offering provide that we will indemnify our directors and officers and permit us to indemnify our employees and other agents, in each case to the maximum extent permitted by the Delaware General Corporation Law.

We have entered into indemnification agreements with our directors and officers, whereby we have agreed to indemnify our directors and officers to the fullest extent permitted by law, including indemnification against expenses and liabilities incurred in legal proceedings to which the director or officer was, or is threatened to be made, a party by reason of the fact that such director or officer is or was a director, officer, employee, or agent of Spruce Biosciences, Inc., provided that such director or officer acted in good faith and in a manner that the director or officer reasonably believed to be in, or not opposed to, the best interest of Spruce Biosciences, Inc.

At present, there is no pending litigation or proceeding involving a director or officer of Spruce Biosciences, Inc. regarding which indemnification is sought, nor is the registrant aware of any threatened litigation that may result in claims for indemnification.

We maintain insurance policies that indemnify our directors and officers against various liabilities arising under the Securities Act and the Securities Exchange Act of 1934, as amended, that might be incurred by any director or officer in his capacity as such.

The underwriters are obligated, under certain circumstances, under the underwriting agreement to be filed as Exhibit 1.1 to this Registration Statement, to indemnify us and our officers and directors against liabilities under the Securities Act.

Item 15.Recent Sales of Unregistered Securities.

Set forth below is information regarding unregistered securities issued by us since January 1, 2017. Also included is the consideration received by us for such securities and information relating to the section of the Securities Act, or rule of the SEC, under which exemption from registration was claimed.

(a) Issuances of Capital Stock and Warrants

1. In February 2019, we issued an aggregate of 8,000,000 shares of Series A redeemable convertible preferred stock to a total of three accredited investors at a purchase price of $1.00 per share, for aggregate consideration of $8,000,000.00.
2. In September 2019, we issued a warrant to a lender, in connection with a loan and security agreement, to purchase 210,156 shares of our common stock with an exercise price of $0.22 per share. In December 2019, the number of shares available for purchase under this warrant was increased to 324,499 shares of common stock by the terms of the warrant.
3. In February 2020, we issued an aggregate of 36,666,665 shares of Series B redeemable convertible preferred stock to a total of 11 accredited investors at a purchase price of $1.20 per share, for aggregate consideration of $43,999,998.00.
4. In August 2020, we issued an aggregate of 36,666,665 shares of Series B redeemable convertible preferred stock to a total of 11 accredited investors at a purchase price of $1.20 per share, for aggregate consideration of $43,999,998.00.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or our public offering. Unless otherwise specified above, we believe these transactions were exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act (and Regulation D promulgated thereunder) to the extent such registration was required. The recipients of the securities in each of these transactions represented to us in connection with their purchase or issuance that they were accredited investors and their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof, and appropriate legends were placed on the share certificates issued in these transactions. All recipients had adequate access, through their relationships with us, to information about us. The sales of these securities were made without any general solicitation or advertising.

(b) Grants of Stock Options

1. From June 2017 to January 2018, we granted stock options to purchase an aggregate of 2,015,000 shares of our common stock at an exercise price of $0.13 per share, to certain of our employees, consultants and directors in connection with services provided to us by such persons.
2. From August 2018 to January 2019, we granted stock options to purchase an aggregate of 500,000 shares of our common stock at an exercise price of $0.18 per share, to certain employees and a consultant in connection with services provided to us by such persons.
3. From July 2019 to October 2019, we granted stock options to purchase an aggregate of 3,023,406 shares of our common stock at an exercise price of $0.22 per share, to certain of our employees and directors in connection with services provided to us by such persons.
4. In June 2020, we granted stock options to purchase an aggregate of 4,620,000 shares of our common stock at an exercise price of $0.25 per share, to certain of our employees and directors in connection with services provided to us by such persons.

5. In August 2020, we granted stock options to purchase an aggregate of 5,149,000 shares of our common stock at an exercise price of $0.47 per share, to certain of our employees and directors in connection with services provided to us by such persons.

Of these options to purchase shares of our common stock, 76,875 have been exercised through the date hereof, at exercise prices from $0.13 to $0.18 per share.

The stock options and the common stock issuable upon the exercise of such options as described in this section (b) of Item 15 were issued pursuant to written compensatory plans or arrangements with our employees, directors, and consultants, in reliance on the exemption from the registration requirements of the Securities Act provided by Rule 701 promulgated under the Securities Act or the exemption set forth in Section 4(a)(2) under the Securities Act and Regulation D promulgated thereunder relative to transactions by an issuer not involving any public offering. All recipients either received adequate information about us or had access, through employment or other relationships, to such information.

All of the foregoing securities are deemed restricted securities for purposes of the Securities Act. All certificates representing the issued shares of capital stock described in this Item 15 included appropriate legends setting forth that the securities had not been registered and the applicable restrictions on transfer.

Item 16.Exhibits and Financial Statement Schedules.

(a) Exhibits.

Exhibit Number	Description
1.1+	Form of Underwriting Agreement.
3.1	Amended and Restated Certificate of Incorporation, as currently in effect.
3.2+	Form of Amended and Restated Certificate of Incorporation, to be in effect immediately prior to the closing of this offering.
3.3	Bylaws, as currently in effect.
3.4+	Form of Amended and Restated Bylaws, to be in effect immediately prior to the closing of this offering.
4.1+	Form of Common Stock Certificate.
4.2	Amended and Restated Investors' Rights Agreement, by and among the registrant and certain of its stockholders, dated February 19, 2020.
4.3¥	Form of Warrant to Purchase Common Stock issued to Silicon Valley Bank, dated September 23, 2019.
5.1+	Opinion of Cooley LLP.
10.1†	Spruce Biosciences, Inc. Amended and Restated 2016 Equity Incentive Plan.
10.2†	Forms of Grant Notice, Stock Option Agreement and Notice of Exercise under the Spruce Biosciences, Inc. Amended and Restated 2016 Equity Incentive Plan.
10.3+†	Spruce Biosciences, Inc. 2020 Equity Incentive Plan.
10.4+†	Forms of Grant Notice, Stock Option Agreement and Notice of Exercise under the Spruce Biosciences, Inc. 2020 Equity Incentive Plan.

Exhibit Number	Description
10.5+†	Forms of Restricted Stock Unit Grant Notice and Award Agreement under the Spruce Biosciences, Inc. 2020 Equity Incentive Plan.
10.6+†	Spruce Biosciences, Inc. 2020 Employee Stock Purchase Plan.
10.7+†	Spruce Biosciences, Inc. 2020 Non-Employee Director Compensation Policy.
10.8+†	Form of Indemnification Agreement by and between the registrant and its directors and executive officers.
10.9†	Spruce Biosciences, Inc. Severance and Change in Control Policy.
10.10†	Consulting Agreement, by and between the registrant and Richard King, dated May 6, 2019.
10.11†¥	Employment Agreement, by and between the registrant and Richard King, dated October 1, 2019.
10.12†¥	Employment Agreement, by and between the registrant and Alexis Howerton, Ph.D., dated May 2, 2016.
10.13†¥	Separation Agreement, by and between the registrant and Alexis Howerton, Ph.D., dated May 24, 2019.
10.14†¥	Employment Agreement, by and between the registrant and Michael Huang, M.D., dated May 16, 2017.
10.15†¥	Separation Agreement, by and between the registrant and Michael Huang, M.D., dated February 26, 2020.
10.16†¥	Offer Letter, by and between the registrant and Samir Gharib, dated April 8, 2020.
10.17†¥	Letter Agreement, by and between the registrant and Michael Grey, dated March 24, 2017.
10.18†¥	Letter Agreement, by and between the registrant and Camilla V. Simpson, dated October 11, 2017.
10.19	Office Lease Agreement, by and between the registrant and DC Station Owner, LLC, dated February 13, 2020.
10.20*	License Agreement, by and between the registrant and Eli Lilly and Company, dated May 2, 2016.
10.21	Loan and Security Agreement, by and between the registrant and Silicon Valley Bank, dated September 23, 2019.
10.22	Deferral Agreement, by and between the registrant and Silicon Valley Bank, dated April 2, 2020.
16.1	Letter from Ernst & Young LLP to the Securities and Exchange Commission.
23.1+	Consent of BDO USA, LLP, independent registered public accounting firm.
23.2+	Consent of Cooley LLP (included in Exhibit 5.1).
24.1+	Power of Attorney (see signature pages).

+ To be filed by amendment.

* Pursuant to Item 601(b)(10) of Regulation S-K, certain portions of this exhibit have been omitted by means of marking such portions with asterisks because the registrant has determined that the

information is not material and would likely cause competitive harm to the registrant if publicly disclosed.

† Indicates management contract or compensatory plan.

¥ Schedules have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The registrant undertakes to furnish supplemental copies of any of the omitted schedules upon request by the SEC.

(b) Financial Statement Schedules.

All financial statement schedules are omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or the notes thereto.

Item 17.Undertakings.

(a) The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

(b) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant under the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer, or controlling person of the registrant in the successful defense of any action, suit, or proceeding) is asserted by such director, officer, or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(c) The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance on Rule 430A and contained in a form of prospectus filed by the registrant under Rule 424(b)(1) or (4) or 497(h) under the Securities Act will be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, as amended, each post-effective amendment that contains a form of prospectus will be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time will be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Daly City, California on , 2020.

SPRUCE BIOSCIENCES, INC.

By: _____
Name: Richard King
Title: Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Richard King and Samir Gharib and each one of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in their name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to sign any registration statement for the same offering covered by this registration statement that is to be effective on filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
Richard King	Chief Executive Officer and Director (Principal Executive Officer)	, 2020
Samir Gharib	Chief Financial Officer (Principal Financial and Accounting Officer)	, 2020
Michael Grey	Executive Chairman	, 2020
Tiba Aynechi, Ph.D.	Director	, 2020
Dina Chaya, Ph.D., C.F.A.	Director	, 2020

Signature	Title	Date
Jonas Hansson, M.Sc.	Director	, 2020
Bali Muralidhar, M.D, Ph.D.	Director	, 2020
Niall O'Donnell, Ph.D.	Director	, 2020
Camilla V. Simpson, M.Sc.	Director	, 2020

Exhibit 3.1

AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
SPRUCE BIOSCIENCES, INC.

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

Spruce Biosciences, Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "**General Corporation Law**"),

DOES HEREBY CERTIFY:

1. That the name of this corporation is Spruce Biosciences, Inc., and that this corporation was originally incorporated pursuant to the General Corporation Law on April 7, 2016.

2. That the Board of Directors duly adopted resolutions proposing to amend and restate the Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the Certificate of Incorporation of this corporation be amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is Spruce Biosciences, Inc. (the "**Corporation**").

SECOND: The address of the registered office of the Corporation in the State of Delaware is 251 Little Falls Drive, Wilmington, Delaware, 19808, County of New Castle. The name of its registered agent at such address is Corporation Service Company.

THIRD: The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

FOURTH: The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 130,518,922 shares of Common Stock, $0.0001 par value per share ("**Common Stock**") and (ii) 101,333,330 shares of Preferred Stock, $0.0001 par value per share ("**Preferred Stock**").

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein.

2. Voting. The holders of the Common Stock are entitled to one vote for each share of Common Stock held at all meetings of stockholders (and written actions in lieu of meetings); provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to the Certificate of Incorporation that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Certificate of Incorporation or pursuant to the General Corporation Law. There shall be no cumulative voting. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of the Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, voting together as a single class on an as converted basis, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

B. PREFERRED STOCK

28,000,000 shares of the authorized and unissued Preferred Stock of the Corporation are hereby designated "**Series A Preferred Stock**" with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. 73,333,330 shares of the authorized and unissued Preferred Stock of the Corporation are hereby designated "**Series B Preferred Stock**" with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to "sections" or "subsections" in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth.

1. Dividends.

The holders of shares of Series B Preferred Stock shall be entitled to receive dividends, out of any assets legally available therefor, prior and in preference to any declaration or payment of any dividend (payable other than in Common Stock or other securities and rights convertible into or entitling the holder thereof to receive, directly or indirectly, additional shares of Common Stock of the Corporation) on any other class or series of Preferred Stock or the Common Stock, at the rate of 8% of the Original Issue Price (as defined below) (as adjusted for stock splits, stock dividends, combination, reclassification and the like) per annum on each outstanding share of Series B Preferred Stock then outstanding; payable when, as and if declared by the Board of Directors of the Corporation (the "**Board of Directors**"). Such dividends shall not be cumulative. After payment of such Series B Preferred Stock dividend, the holders of shares of Series A Preferred Stock shall be entitled to receive dividends, out of any assets legally available therefor, prior and in preference to any declaration or payment of any other dividend (payable other than in Common Stock or other securities and rights convertible into or entitling the holder thereof to receive, directly or indirectly, additional shares of Common Stock of the Corporation) on the Common Stock, at the rate of 8% of the Original Purchase Price (as defined below) (as

adjusted for stock splits, stock dividends, combination, reclassification and the like) per annum on each outstanding share of Series A Preferred Stock then outstanding; payable when, as and if declared by the Board of Directors . Such dividends shall not be cumulative. After payment of such Series A Preferred Stock dividends and such Series B Preferred Stock dividends, any additional dividends shall be distributed among the holders of Preferred Stock and Common Stock *pro rata* based on the number of shares of Common Stock then held by each holder (assuming conversion of all such Preferred Stock into Common Stock).

In the event that the Corporation determines, subject to Section 3.3 below, and without limiting Section 2 below, to distribute (x) the proceeds (cash or otherwise) resulting from any sale or other transfer of a significant portion of its assets (other than any sale or other transfer of its assets effected in the ordinary course of business of the Corporation for which the Corporation is not required to obtain any consent pursuant to Section 3.3) or (y) the proceeds from any option to acquire securities or assets of the Corporation, the proceeds resulting therefrom (including in respect of any ongoing payments, such as milestone payments) shall be distributed in accordance with Section 2 below (and the amounts subsequently distributable pursuant to Section 2 will be reduced accordingly such that the total of all amounts distributed shall be equal to the amounts payable as if the proceeds were distributed in a single transaction), and not this Section 1.

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

2.1 Preferential Payments to Holders of Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders, on a *pari passu* basis, before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to the applicable Original Issue Price (as defined below) plus any dividends declared but unpaid thereon. If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1, the holders of shares of Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full. The "**Original Issue Price**" shall mean $1.00 per share for each share of Series A Preferred Stock and $1.20 per share of each share of Series B Preferred Stock, in each case subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such shares of Preferred Stock.

2.2 Distribution of Remaining Assets. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Preferred Stock, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of the shares of Preferred Stock and Common Stock, *pro rata* based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to Common Stock pursuant to the

terms of the Certificate of Incorporation immediately prior to such liquidation, dissolution or winding up of the Corporation; provided, however, that if the aggregate amount which the holders of Preferred Stock are entitled to receive under Subsections 2.1 and 2.2 shall exceed the applicable Maximum Participation Amount (as defined below), each holder of such applicable Preferred Stock shall be entitled to receive upon such liquidation, dissolution or winding up of the Corporation the greater of (i) such Maximum Participation Amount and (ii) the amount such holder would have received if all shares of such applicable Preferred Stock had been converted into Common Stock immediately prior to such liquidation, dissolution or winding up of the Corporation. The "**Maximum Participation Amount**" shall mean $4.00 per share for each share of Series A Preferred Stock and $4.80 per share for each share of Series B Preferred Stock (in each case, subject to appropriate adjustment in the event of a stock split, stock dividend, combination, reclassification, or similar event affecting such shares of Preferred Stock). The aggregate amount which a holder of a share of Preferred Stock is entitled to receive under Subsections 2.1 and 2.2 is hereinafter referred to as the "**Preferred Liquidation Amount**."

2.3 Deemed Liquidation Events.

2.3.1 Definition. Each of the following events shall be considered a "**Deemed Liquidation Event**" unless the holders of a majority of the outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis, which must include the approval of the Significant Investor Majority (as defined in that certain Amended and Restated Investors' Rights Agreement dated on or about the Series B Original Issue Date (as defined below) by and among the Corporation and the other parties thereto, as amended from time to time) (the "**Rights Agreement**") waive such treatment by written notice sent to the Corporation at least 10 days prior to the effective date of any such event:

(a) a merger or consolidation in which

(i) the Corporation is a constituent party or

(ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation (in substantially the same proportions and with substantially the same rights and privileges), at least a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation; or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or

(b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets or intellectual property of the Corporation and its subsidiaries taken as a whole, or the sale or disposition (whether by merger,

consolidation or otherwise, and whether in a single transaction or a series of related transactions) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Corporation.

2.3.2 Effecting a Deemed Liquidation Event.

(a) The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(i) unless the agreement or plan of merger or consolidation for such transaction (the "**Merger Agreement**") provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2.

(b) In the event of a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(ii) or 2.3.1(b), if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law within ninety (90) days after such Deemed Liquidation Event, then (i) the Corporation shall send a written notice (the "**Redemption Notice**") to each holder of Preferred Stock no later than the ninetieth (90th) day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause; (ii) to require the redemption of such shares of Preferred Stock, and (iii) if the holders of at least a majority of the then outstanding shares of Preferred Stock so request in a written instrument delivered to the Corporation not later than one hundred twenty (120) days after such Deemed Liquidation Event, the Corporation shall use the consideration received by the Corporation for such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors), together with any other assets of the Corporation available for distribution to its stockholders, all to the extent permitted by Delaware law governing distributions to stockholders (the "**Available Proceeds**"), on the one hundred fiftieth (150th) day after such Deemed Liquidation Event, to redeem all outstanding shares of Preferred Stock at a price per share equal to the applicable Preferred Liquidation Amount. Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Available Proceeds are not sufficient to redeem all outstanding shares of Preferred Stock, the Corporation shall ratably redeem each holder's shares of Preferred Stock to the fullest extent of such Available Proceeds, and shall redeem the remaining shares as soon as it may lawfully do so under Delaware law governing distributions to stockholders.

(i) Each Redemption Notice shall state: (1) the number of shares of Preferred Stock held by the holder that the Corporation shall redeem; (2) the date of redemption (the "**Redemption Date**") and the amount to be paid to such holder; and (3) for holders of shares in certificated form, that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Preferred Stock to be redeemed.

(ii) On or before the Redemption Date, each holder of shares of Preferred Stock to be redeemed shall surrender the certificate or certificates representing such shares (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the

Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the Available Proceeds for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof.

Prior to the distribution or redemption provided for in this Subsection 2.3.2(b), the Corporation shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event or in the ordinary course of business pursuant to the Corporation's budget approved by the Board of Directors.

2.3.3 Amount Deemed Paid or Distributed. The amount deemed paid or distributed to the holders of capital stock of the Corporation upon any such merger, consolidation, sale, transfer, exclusive license, other disposition or redemption shall be the cash or the value of the property, rights or securities paid or distributed to such holders by the Corporation or the acquiring person, firm or other entity. The value of such property, rights or securities shall be determined in good faith by the Board of Directors.

2.3.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event pursuant to Subsection 2.3.1(a)(i), if any portion of the consideration payable to the stockholders of the Corporation is payable only upon satisfaction of contingencies (the "**Additional Consideration**"), the Merger Agreement shall provide that (a) the portion of such consideration that is not Additional Consideration (such portion, the "**Initial Consideration**") shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event; and (b) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 after taking into account the previous payment of the Initial Consideration as part of the same transaction. For the purposes of this Subsection 2.3.4, consideration placed into escrow or retained as holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of Common Stock into which the shares of Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of the Certificate of Incorporation, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class.

3.2 Election of Directors. The holders of record of the shares of Series A Preferred Stock, exclusively and as a separate class, shall be entitled to elect two (2) directors of the Corporation (the "**Series A Directors**"). The holders of record of the shares of Series B Preferred Stock, exclusively and as a separate class, shall be entitled to elect three (3) directors of

the Corporation (the "**Series B Directors**" and together with the Series A Directors, the "**Preferred Directors**"). The holders of record of the shares of Common Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation. Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of Series A Preferred Stock, Series B Preferred Stock, or Common Stock, as the case may be, fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first sentence of this Subsection 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the Series A Preferred Stock, Series B Preferred Stock, or Common Stock, as the case may be, elect a person to fill such directorship by vote or written consent in lieu of a meeting; and no such directorship may be filled by stockholders of the Corporation other than by the stockholders of the Corporation that are entitled to elect a person to fill such directorship, voting exclusively and as a separate class. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Preferred Stock), exclusively and voting together as a single class on an as-converted basis, shall be entitled to elect the balance of the total number of directors of the Corporation. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director. Except as otherwise provided in this Subsection 3.2, a vacancy in any directorship filled by the holders of any class or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or series or by any remaining director or directors elected by the holders of such class or series pursuant to this Subsection 3.2. The rights of the holders of the Preferred Stock under the first and second sentences of this Subsection 3.2 shall terminate on the first date following the Series B Original Issue Date (as defined below) on which there are no longer any shares of Preferred Stock issued and outstanding.

3.3 Preferred Stock Protective Provisions. So long as 20,266,666 shares of Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of the holders of a majority of the then outstanding shares of Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) together as a single class on an as-converted basis, which must include the approval of the Significant Investor Majority (as defined in the Rights Agreement) and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.3.1 amend, alter, waive or repeal any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Preferred Stock;

3.3.2 increase or decrease (other than for decreases resulting from conversion of the Preferred Stock) the authorized number of shares of Preferred Stock or Common Stock or any series thereof;

3.3.3 create, or authorize the creation of, or issue or obligate itself to issue shares of, any additional class or series of capital stock (or reclassify any existing class or series of securities) unless the same ranks junior to the Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends, voting rights and rights of redemption, or increase the authorized number of shares of any additional class or series of capital stock unless the same ranks junior to the Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends, voting rights and rights of redemption;

3.3.4 reclassify, alter or amend any existing security of the Corporation that is pari passu with the Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to the Preferred Stock in respect of any such right, preference, or privilege or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or pari passu with the Preferred Stock in respect of any such right, preference or privilege;

3.3.5 any increase in the number of shares reserved for issuance pursuant to any existing stock or option plan or newly created stock or option plan;

3.3.6 liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any merger or consolidation or any other Deemed Liquidation Event, or consent to any of the foregoing;

3.3.7 sell, assign, license, encumber or dispose of all or substantially all of the Corporation's assets, technology or intellectual property (other than pursuant to equipment leases, lines of credit or other debt financing approved by the Corporation's Board of Directors, including at least three (3) of the Preferred Directors, which shall include at least one (1) Series A Director and at least one (1) Series B Director);

3.3.8 create or authorize the creation of, or issue or authorize the issuance of any debt security or instrument, any lien or security interest on the assets or intellectual property of the Corporation, or otherwise incur or guarantee new indebtedness for borrowed money if the Corporation's aggregate indebtedness for borrowed money following such action would exceed $250,000 in the aggregate (excluding equipment leases, lines of credit or other debt financing approved by the Corporation's Board of Directors, including at least three (3) of the Preferred Directors, which shall include at least one (1) Series A Director and at least one (1) Series B Director);

3.3.9 purchase or redeem (or permit any subsidiary to purchase or redeem) or pay or declare any dividend or make any distribution on, any shares of capital stock of the Corporation other than (i) redemptions of or dividends or distributions on the Preferred Stock as expressly authorized herein, (ii) dividends or other distributions payable on the Common Stock solely in the form of additional shares of Common Stock and (iii) repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Corporation or any subsidiary in connection with the cessation of

such employment or service at the lower of the original purchase price or the then-current fair market value thereof or (iv) as approved by the Board of Directors, including at least three (3) of the Preferred Directors, which shall include at least one (1) Series A Director and at least one (1) Series B Director;

3.3.10 create, or hold capital stock in, any subsidiary that is not wholly owned (either directly or through one or more other subsidiaries) by the Corporation, or sell, transfer or otherwise dispose of any capital stock of any direct or indirect subsidiary of the Corporation, or permit any direct or indirect subsidiary to sell, lease, transfer, exclusively license or otherwise dispose (in a single transaction or series of related transactions) of all or substantially all of the assets or intellectual property of such subsidiary;

3.3.11 any increase or decrease in the authorized number of directors constituting the Board of Directors;

3.3.12 enter into any related party transaction or agreement with any officer or director of the Corporation, or any significant stockholder of the Corporation, or an affiliate or family member of the foregoing, except for ordinary course employment agreements on fair and reasonable terms that are approved by the Board of Directors, including a majority of the disinterested members of the Board of Directors; or

3.3.13 enter into any agreement to do any of the foregoing.

4. Optional Conversion.

The holders of the Preferred Stock shall have conversion rights as follows (the "**Conversion Rights**"):

4.1 Right to Convert.

4.1.1 Conversion Ratio. Without the written consent of the Board, including at least three (3) of the Preferred Directors, which shall include at least one (1) Series A Director and at least one (1) Series B Director and the holders of a majority of the then outstanding shares of Preferred Stock, which must include the approval of the Significant Investor Majority (as defined in the Rights Agreement), shares of Preferred Stock shall not be convertible until the earlier of (X) the Secondary Closing (or an Elective Secondary Closing with respect to a holder of Preferred Stock who participates in such Elective Secondary Closing and purchases such holder's Secondary Closing Share Amount at such Elective Secondary Closing pursuant to the terms of the Series B SPA (as defined below)) (each as defined in the Series B SPA) shall have been consummated and any Special Mandatory Conversion shall have been effected, (Y) the End Date (as defined in the Series B SPA) or (Z) the termination of the Series B SPA in accordance with its terms; provided that, notwithstanding the foregoing, in the event of (a) a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended (an "IPO") or (b) a Deemed Liquidation Event, the Corporation shall provide each holder of Preferred Stock at least twenty (20) days' prior written notice of such IPO or Deemed Liquidation Event and, upon delivery of such notice, each holder of Preferred Stock shall be entitled to convert such holder's shares of Preferred Stock into shares of Common Stock in accordance with this Subsection 4.1.1. Thereafter, each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time and

from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the applicable Original Issue Price by the applicable Conversion Price (as defined below) in effect at the time of conversion. The "**Conversion Price**" shall initially be equal to $1.00 per share for each share of Series A Preferred Stock and $1.20 per share for each share of Series B Preferred Stock. Each such initial Conversion Price, and the rate at which such shares of Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

4.1.2 Termination of Conversion Rights. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Preferred Stock to voluntarily convert shares of Preferred Stock into shares of Common Stock, such holder shall (a) provide written notice to the Corporation's transfer agent at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent) that such holder elects to convert all or any number of such holder's shares of Preferred Stock and, if applicable, any event on which such conversion is contingent and (b), if such holder's shares are certificated, surrender the certificate or certificates for such shares of Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent). Such notice shall state such holder's name or the names of the nominees in which such holder wishes the shares of Common Stock to be issued. If required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such notice and, if applicable, certificates (or lost certificate affidavit and agreement) shall be the time of conversion (the "**Conversion Time**"), and the shares of Common Stock issuable upon conversion of the specified shares shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time (i) issue and deliver to such holder of Preferred Stock, or

to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and (iii) pay all declared but unpaid dividends on the shares of Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when the Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to the Certificate of Incorporation. Before taking any action that would cause an adjustment reducing the applicable Conversion Price of a series of Preferred Stock below the then par value of the shares of Common Stock issuable upon conversion of such series of Preferred Stock, the Corporation will take any corporate action that may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and non-assessable shares of Common Stock at such adjusted Conversion Price.

4.3.3 Effect of Conversion. All shares of Preferred Stock that shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends declared but unpaid thereon. Any shares of Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of such series of Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the applicable Conversion Price shall be made for any declared but unpaid dividends on such series of Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax that may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

4.4 Adjustments to Conversion Price for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

(a) "**Option**" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(b) "**Series B Original Issue Date**" shall mean the date on which the first share of Series B Preferred Stock was issued.

(c) "**Convertible Securities**" shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(d) "**Additional Shares of Common Stock**" shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series B Original Issue Date, other than (1) the following shares of Common Stock and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (i) and (ii), collectively, "**Exempted Securities**"):

(i) shares of Common Stock issued pursuant to the exercise or conversion of Convertible Securities outstanding as of the Series B Original Issue Date;

(ii) shares of Common Stock or Options issued after the original issue date to employees, officers or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors (including at least three (3) of the Preferred Directors, including at least one (1) Series A Director and at least one (1) Series B Director) and a majority of the holders of Preferred Stock, voting together as a single class on an as-converted basis;

(iii) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;

(iv) shares of Common Stock or Convertible Securities issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors, including at least three (3) of the Preferred Directors, which shall include at least one (1) Series A Director and at least one (1) Series B Director;

(v) shares of Common Stock or Convertible Securities actually issued for consideration other than cash pursuant to the acquisition of another corporation by the Corporation by merger, consolidation, acquisition, strategic alliance or similar business combination approved by the Board of Directors, including at least three (3) of the Preferred Directors, which shall include at least one (1) Series A Director and at least one (1) Series B Director; and

(vi) shares of Common Stock issued upon conversion of the Preferred Stock.

4.4.2 No Adjustment of Conversion Price. No adjustment in the Conversion Price of the Series A Preferred Stock shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least a majority of the then outstanding shares of Series A Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Conversion Price of the Series B Preferred Stock shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least sixty percent (60%) of the then outstanding shares of Series B Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock.

4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series B Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities that are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the Conversion Price of such series of Preferred Stock computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Conversion Price as would have obtained had such revised terms been in effect upon the original

date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the Conversion Price of a series of Preferred Stock to an amount that exceeds the lower of (i) the Conversion Price of such series of Preferred Stock in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Conversion Price that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities that are themselves Exempted Securities), the issuance of which did not result in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than the applicable Conversion Price then in effect, or because such Option or Convertible Security was issued before the Series B Original Issue Date), are revised after the Series B Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) that resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4.4.4, such Conversion Price shall be readjusted to such Conversion Price as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the Conversion Price of a series of Preferred Stock provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the Conversion Price of such series of Preferred

Stock that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the Conversion Price that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time after the Series B Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than the Conversion Price of a series of Preferred Stock in effect immediately prior to such issue, then the Conversion Price of such series of Preferred Stock shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = CP_1 * (A + B) \div (A + C).$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) "CP_2" shall mean the applicable Conversion Price in effect immediately after such issue of Additional Shares of Common Stock

(b) "CP_1" shall mean the applicable Conversion Price in effect immediately prior to such issue of Additional Shares of Common Stock;

(c) "A" shall mean the number of shares of Common Stock outstanding immediately prior to such issue of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issue or upon conversion or exchange of Convertible Securities (including the Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);

(d) "B" shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP_1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP_1); and

(e) "C" shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

(i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors; and

(iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration that covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing:

(i) The total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

(ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Conversion Price of a series of Preferred Stock pursuant to the terms of Subsection 4.4.4, and such issuance dates occur within a period of no more than ninety (90) days from the first such issuance to the final such issuance, then, upon the final such issuance, the Conversion Price of such series of Preferred Stock shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series B Original Issue Date effect a subdivision of the outstanding Common Stock, the Conversion Price of any series of Preferred Stock in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Series B Original Issue Date combine the outstanding shares of Common Stock, the Conversion Price of any series of Preferred Stock in effect immediately before the combination shall be proportionately

increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the Conversion Price of any series of Preferred Stock in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Conversion Price of such series of Preferred Stock then in effect by a fraction:

(1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, such Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Conversion Price shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) that no such adjustment shall be made if the holders of such series of Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of such series of Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then and in each such event the holders of Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.3, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property that a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of the Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Conversion Price of any such series of Preferred Stock) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Preferred Stock. For the avoidance of doubt, nothing in this Subsection 4.8 shall be construed as preventing the holders of Preferred Stock from seeking any appraisal rights to which they are otherwise entitled under the DGCL in connection with a merger triggering an adjustment hereunder, nor shall this Subsection 4.8 be deemed conclusive evidence of the fair value of the shares of Preferred Stock in any such appraisal proceeding.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Conversion Price of any series of Preferred Stock pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of such series of Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which such series of Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of such series of Preferred Stock (but in any event not later than ten (10) days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Conversion Price of such series of Preferred Stock then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property that then would be received upon the conversion of such series of Preferred Stock.

4.10 Notice of Record Date. In the event:

(a) the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or

(b) of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, or any Deemed Liquidation Event; or

(c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation,

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the Preferred Stock and the Common Stock. Such notice shall be sent at least ten (10) days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

5.1 Trigger Events. Upon either (a) the affirmative election of the holders of a majority of the then outstanding Preferred Stock, voting together as a single class on an as-converted basis, which must include the approval of the Significant Investor Majority (as defined in the Rights Agreement) or (b) the closing of a firmly underwritten public offering in which (i) the gross cash proceeds to the Corporation (before underwriting discounts, commissions and fees) are at least $50 million, (ii) the price per share in the public offering is at least $2.40 (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such shares of Preferred Stock), and (iii) the Corporation's shares have been listed for trading on the New York Stock Exchange, NASDAQ Global Select Market or NASDAQ Global Market (the time of such closing or the date and time specified or the time of the event specified in such vote or written consent is referred to herein as the "**Mandatory Conversion Time**"), then (i) all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective applicable conversion rate as calculated pursuant to Subsection 4.1.1. and (ii) such shares may not be reissued by the Corporation.

5.2 Procedural Requirements. All holders of record of shares of Preferred Stock shall be sent written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of Preferred Stock pursuant to this Section 5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of Preferred Stock in certificated form shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Preferred Stock converted pursuant to Subsection 5.1, including the rights, if any, to receive notices and vote (other than as a holder of Common

Stock), will terminate at the Mandatory Conversion Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or \lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Subsection 5.2. As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock, the Corporation shall (a) issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof and (b) pay cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Preferred Stock converted. Such converted Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

6. Special Mandatory Conversion.

6.1 Trigger Event. Subject to Section 4 of the Series B SPA, in the event that any Purchaser (as defined in the Series B SPA (as defined below)) does not participate in the Secondary Closing, if such closing shall occur, by purchasing such Purchaser's Secondary Closing Share Amount (taking into account any Secondary Closing Shares purchased at an Elective Secondary Closing by such Purchaser) (each as defined in the Series B SPA) in accordance with the terms of the Series B SPA, then each share of Preferred Stock held by such Purchaser (or transferee thereof) on the date of the Secondary Closing shall automatically, and without any further action on the part of such Purchaser, be converted into Common Stock at a conversion ratio of ten (10) shares of Preferred Stock to one (1) share of Common Stock, effective upon, subject to, and concurrently with the consummation of the Secondary Closing. For purposes of determining the number of shares of Series B Preferred Stock a Purchaser has purchased in the Secondary Closing, all shares of Series B Preferred Stock purchased in the Secondary Closing and/or an Elective Secondary Closing (as defined in the Series B SPA) by Affiliates (as defined below) of such Purchaser in the Secondary Closing and/or an Elective Secondary Closing shall be aggregated with the shares of Series B Preferred Stock purchased by such Purchaser in the Secondary Closing and/or an Elective Secondary Closing (provided that no shares or securities shall be attributed to more than one entity or person within any such group of affiliated entities or persons). Such conversion is referred to as a "**Special Mandatory Conversion**".

6.2 Procedural Requirements. Upon a Special Mandatory Conversion, each holder of shares of Preferred Stock converted pursuant to Subsection 6.1 shall be sent written notice of such Special Mandatory Conversion and the place designated for mandatory conversion of all such shares of Preferred Stock pursuant to this Section 6. Upon receipt of such notice, each holder of such shares of Preferred Stock in certificated form, if applicable, shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that any such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the

Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Preferred Stock converted pursuant to Subsection 6.1, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the time of the Special Mandatory Conversion (notwithstanding the failure of the holder or holders thereof to surrender any certificates for such shares at or prior to such time), except for the rights of the holders thereof, upon surrender of any certificate or certificates of such holders therefor (or lost certificate affidavit and agreement), to receive the items provided for in the next sentence of this Subsection 6.2. As soon as practicable after the Special Mandatory Conversion and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock so converted, the Corporation shall (a) issue and deliver to such holder, or to his, her or its nominees, a notice of issuance of uncertificated shares and may, upon written request, issue and deliver a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof of and (b) pay cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Preferred Stock converted. Such converted Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

6.3 Restrictions on Transfer. So as not to abrogate the intent of this Section 6, no holder of shares of Series B Preferred Stock may sell, transfer, assign, pledge, or otherwise dispose of or encumber any of such shares of Series B Preferred Stock or any right or interest therein, whether voluntarily or by operation of law, or by gift or otherwise at any time prior to the earlier of (i) consummation of the Secondary Closing (or an Elective Secondary Closing with respect to a holder of Preferred Stock who participates in such Elective Secondary Closing and purchases such holder's Secondary Closing Share Amount at such Elective Secondary Closing pursuant to the terms of the Series B SPA) (each as defined in the Series B SPA) or (ii) the End Date (as defined in the Series B SPA); provided that, notwithstanding the foregoing, (X) a holder of shares of Series B Preferred Stock shall be permitted to transfer such shares of Series B Preferred Stock to Affiliates and (Y) a holder of shares of Series B Preferred Stock shall be permitted to sell, transfer, assign, pledge, or otherwise dispose of or encumber such shares of Series B Preferred Stock or any right or interest therein in connection with a Deemed Liquidation Event.

6.4 Definitions. For purposes of this Section 6, the following definitions shall apply:

(a) "**Affiliate**" shall mean, with respect to any holder of shares of Series B Preferred Stock, any person, entity or firm which, directly or indirectly, controls, is controlled by or is under common control with such holder, including, without limitation, any entity of which the holder is a partner or member, any partner, officer, director, member or employee of such holder and any venture capital fund or registered investment company now or hereafter existing of which the holder is a partner or member which is controlled by or under common control with one or more general partners, managing members or investment advisers of such holder or shares the same management company or investment adviser with such holder. For purposes of clarity, a minority limited partner in a venture capital fund shall not be an Affiliate of such venture capital fund.

(b) "**Secondary Closing**" shall have the meaning set forth in the Series B SPA.

(c) "**Series B SPA**" shall mean that certain Series B Preferred Stock Purchase Agreement, dated as of the Series B Original Issue Date, by and among the Corporation and certain stockholders that are parties thereto, as the same may be amended from time to time.

7. Redemption. Other than as set forth in Section 2.3.2(b), the Preferred Stock is not redeemable.

8. Redeemed or Otherwise Acquired Shares. Any shares of Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Preferred Stock following redemption.

9. Waiver. Any of the rights, powers, preferences and other terms of the Preferred Stock set forth herein may be waived on behalf of all holders of Preferred Stock by the affirmative written consent or vote of the holders of a majority of the shares of Preferred Stock then outstanding, which must include the approval of the Significant Investor Majority (as defined in the Rights Agreement); provided, however, that the waiver of any approval or consent rights specifically granted thereunder to the holders of Series B Preferred Stock as a separate series shall additionally require the affirmative written consent or vote of the holders of at least sixty percent (60%) of the shares of Series B Preferred Stock then outstanding.

10. Notices. Any notice required or permitted by the provisions of this Article Fourth to be given to a holder of shares of Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

FIFTH: Subject to any additional vote required by the Certificate of Incorporation or Bylaws, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of the Corporation.

SIXTH: Subject to any additional vote required by the Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation.

SEVENTH: Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

EIGHTH: Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

NINTH: To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is amended after approval by the stockholders of this Article Ninth to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended.

Any repeal or modification of the foregoing provisions of this Article Ninth by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

TENTH: To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which General Corporation Law permits the Corporation to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the General Corporation Law.

Any amendment, repeal or modification of the foregoing provisions of this Article Tenth shall not adversely affect any right or protection of any director, officer or other agent of the Corporation existing at the time of such amendment, repeal or modification.

ELEVENTH: The Corporation renounces, to the fullest extent permitted by law, any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "**Excluded Opportunity**" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, "**Covered Persons**"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation.

TWELFTH: Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery in the State of Delaware shall be the sole and exclusive forum for any stockholder (including a beneficial owner) to bring (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (iii) any action asserting a claim against the

Corporation, its directors, officers or employees arising pursuant to any provision of the Delaware General Corporation Law or the Corporation's certificate of incorporation or bylaws or (iv) any action asserting a claim against the Corporation, its directors, officers or employees governed by the internal affairs doctrine, except for, as to each of (i) through (iv) above, any claim as to which the Court of Chancery determines that there is an indispensable party not subject to the jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within ten days following such determination), which is vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery, or for which the Court of Chancery does not have subject matter jurisdiction. If any provision or provisions of this Article Twelfth shall be held to be invalid, illegal or unenforceable as applied to any person or entity or circumstance for any reason whatsoever, then, to the fullest extent permitted by law, the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article Twelfth (including, without limitation, each portion of any sentence of this Article Twelfth containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) and the application of such provision to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

THIRTEENTH: For purposes of Section 500 of the California Corporations Code (to the extent applicable), in connection with any repurchase of shares of Common Stock permitted under this Certificate of Incorporation from employees, officers, directors or consultants of the Corporation in connection with a termination of employment or services pursuant to agreements or arrangements approved by the Board of Directors (in addition to any other consent required under this Certificate of Incorporation), such repurchase may be made without regard to any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined in Section 500 of the California Corporations Code). Accordingly, for purposes of making any calculation under California Corporations Code Section 500 in connection with such repurchase, the amount of any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined therein) shall be deemed to be zero (0).

* * *

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the General Corporation Law.

4. That this Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this Corporation's Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 19th day of February, 2020.

[*Signature Page Follows*]

By: /s/ Richard King
Richard King
Chief Executive Officer

SIGNATURE PAGE TO SPRUCE BIOSCIENCES, INC.
AMENDED AND RESTATED CERTIFICATE OF INCORPORATION

BYLAWS

OF

SPRUCE BIOSCIENCES, INC.
(a Delaware corporation)

Adopted as of April 8, 2016

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ARTICLE I.
IDENTIFICATION; OFFICES

SECTION 1. NAME. The name of the corporation is Spruce Biosciences, Inc. (the "Corporation").

SECTION 2. PRINCIPAL AND BUSINESS OFFICES. The Corporation may have such principal and other business offices, either within or outside of the state of Delaware, as the Board of Directors may designate or as the Corporation's business may require from time to time.

SECTION 3. REGISTERED AGENT AND OFFICE. The Corporation's registered agent may be changed from time to time by or under the authority of the Board of Directors. The address of the Corporation's registered agent may change from time to time by or under the authority of the Board of Directors, or the registered agent. The business office of the Corporation's registered agent shall be identical to the registered office. The Corporation's registered office may be but need not be identical with the Corporation's principal office in the state of Delaware. The Corporation's initial registered office shall be in the City of Wilmington, County of New Castle, State of Delaware.

SECTION 4. PLACE OF KEEPING CORPORATE RECORDS. The records and documents required by law to be kept by the Corporation permanently shall be kept at the Corporation's principal office or as the Board of Directors may designate.

ARTICLE II.
STOCKHOLDERS

SECTION 1. ANNUAL MEETING. An annual meeting of the stockholders shall be held on such date as may be designated by the Board of Directors, the Chairman of the Board, the Chief Executive Officer or the President. At each annual meeting, the stockholders shall elect directors to hold office for the term provided in Section 2 of Article III of these Bylaws and transact such other business as may properly be brought before the meeting.

SECTION 2. SPECIAL MEETING. A special meeting of the stockholders for any purpose or purposes may be called at any time only by the President, the Board of Directors, the Chairman of the Board, the Chief Executive Officer or any other person designated by the Board of Directors. The Board of Directors may postpone or reschedule any previously scheduled special meeting of stockholders. Business transacted at any special meeting of stockholders shall be limited to matters relating to the purpose or purposes stated in the notice of meeting.

SECTION 3. PLACE OF STOCKHOLDER MEETINGS. The Board of Directors, the Chairman of the Board, the Chief Executive Officer or the President may designate any place, either within or without the State of Delaware, as the place of meeting for any annual meeting or for any special meeting. If no such place is designated by the Board of Directors, the place of meeting will be the principal business office of the Corporation or the Board of Directors may, in its sole discretion, determine that the meeting shall not be held at any place, but will instead be held solely by means of remote communication as provided under Section 211 of the Delaware General Corporation Law.

SECTION 4. NOTICE OF MEETINGS. Except as otherwise provided by law or waived as herein provided, whenever stockholders are required or permitted to take any action at a meeting, whether annual or special, written notice of the meeting shall be given stating the place, if any, date and hour of the meeting, the means of remote communications, if any, by which stockholders may be deemed to be present in person and vote at such meeting and, in the case of a special meeting, the purpose or purposes for which the meeting is called. Such written notice shall be given not less than 10 days nor more than 60 days before the date of the meeting to each stockholder entitled to vote at the meeting. If mailed, notice is given when deposited in the United States mail, postage prepaid, directed to the stockholder at the stockholder's address as it appears on the records of the Corporation. If electronically transmitted (in a manner consistent with Section 232 of the Delaware General Corporation Law), then notice is deemed given when transmitted and directed to a facsimile number or electronic mail address at which the stockholder has consented to receive notice. An affidavit of the secretary or of the transfer agent or other agent of the Corporation that the notice has been given by a form of electronic transmission shall, in the absence of fraud, be *prima facie* evidence of the facts stated therein.

When a meeting is adjourned to reconvene at the same or another place, if any, or by means of remote communications, if any, in accordance with Section 6 of Article II of these Bylaws, notice need not be given of the adjourned meeting if the time and place thereof are announced at the meeting at which the adjournment is taken.

SECTION 5. QUORUM. Unless otherwise provided by law, the Corporation's Certificate of Incorporation or these Bylaws, the holders of a majority in voting power of the shares of the capital stock of the Corporation issued and outstanding and entitled to vote at the meeting, present in person, present by means of remote communication in a manner, if any, authorized by the Board of Directors in its sole discretion, or represented by proxy, shall constitute a quorum for the transaction of business; provided, however, that where a separate vote by a class or classes or series of capital stock is required by law or the Certificate of Incorporation, the holders of a majority in voting power of the shares of such class or classes or series of the capital stock of the Corporation issued and outstanding and entitled to vote on such matter, present in person, present by means of remote communication in a manner, if any, authorized by the Board of Directors in its sole discretion, or represented by proxy, shall constitute a quorum entitled to take action with respect to the vote on such matter. If a quorum is present in person or represented by proxy at such meeting, such stockholders may continue to transact business until adjournment, notwithstanding the withdrawal of such number of stockholders as may leave less than a quorum.

SECTION 6. ADJOURNED MEETINGS. Any meeting of stockholders may be adjourned from time to time to any other time and to any other place (or by means of remote communications, if any) at which a meeting of stockholders may be held under these Bylaws by the chairman of the meeting or by a majority of the stockholders present or represented at the meeting and entitled to vote, although less than a quorum. It shall not be necessary to notify any stockholder of any adjournment of less than 30 days if the time and place, if any, of the adjourned meeting, and the means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting, are announced at the meeting at which adjournment is taken, unless after the adjournment a new record date is fixed for the adjourned meeting. At the adjourned meeting, the Corporation may transact any business which might have been transacted at the original meeting.

SECTION 7. FIXING OF RECORD DATE.

(a) The Board of Directors may fix in advance a date as a record date for the determination of the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof. Such record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than 60 days nor less than 10 days before the date of such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for the adjourned meeting.

(b) For the purpose of determining stockholders entitled to consent to corporate action in writing without a meeting, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is established by the Board of Directors, and which date shall not be more than 10 days after the date on which the resolution fixing the record date is adopted by the Board of Directors. If no record date has been fixed by the Board of Directors, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting, when no prior action by the Board of Directors is required by law, shall be the first date on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the Corporation by delivery to its registered office in the State of Delaware, its principal office, or an officer or agent of the Corporation having custody of the book in which the proceedings of meetings of stockholders are recorded. Delivery to the Corporation's registered office shall be by hand or by certified or registered mail, return receipt requested. If no record date has been fixed by the Board of Directors and prior action by the Board of Directors is required by law, the record date for determining stockholders' consent to corporate action in writing without a meeting shall be the close of business on the day on which the Board of Directors adopts the resolution taking such prior action.

(c) For the purpose of determining the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect to any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix the record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than 60 days prior to such action. If no record date is fixed, the record date for determining the stockholders for any such purpose shall be the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

SECTION 8. VOTING LIST. The officer who has charge of the stock ledger of the Corporation shall prepare and make, at least 10 days before every meeting of stockholders, a complete list of stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, for a period of at least 10 days prior to the meeting, (i) by a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (ii) during ordinary business hours, at the principal place of business of the Corporation. In the event that the Corporation determines to make the list available on an electronic network, the Corporation may take reasonable steps to ensure that such information is available only to the stockholders of the Corporation. If the meeting is to be held at a place, then the list shall be produced and kept at the time and place of the meeting during the whole time thereof and may be inspected by any stockholder who is present. If the meeting is to be held solely by means of remote communication, then the list shall also be open to the examination of any stockholder during the whole time of the meeting on a reasonably accessible electronic network, and the information required to access such list shall be provided with the notice of the meeting. Except as otherwise provided by law, such list shall be the only evidence as to the identity of stockholders entitled to examine the list of stockholders required by this Section 8 or to vote in person or by proxy at any meeting of the stockholders. The Corporation shall not be required to include electronic mail addresses or other electronic contact information on such list.

SECTION 9. VOTING. Unless otherwise provided by the Certificate of Incorporation, each stockholder shall be entitled to one vote for each share of capital stock held by each stockholder. When a quorum is present at any meeting, in all matters other than the election of directors, the affirmative vote of the majority of shares present in person or represented by proxy at the meeting and entitled to vote on the subject matter shall be the act of the stockholders, except when a different vote is required by law, the Certificate of Incorporation or these Bylaws. When a quorum is present at any meeting, directors shall be elected by plurality of the votes of the shares present in person or represented by a proxy at the meeting entitled to vote on the election of directors.

SECTION 10. PROXIES. Each stockholder entitled to vote at a meeting of stockholders or to express consent or dissent to corporate action in writing without a meeting (including by means of remote communications, if any, by which stockholders may be deemed to be present in person and vote at such meeting) may authorize another person or persons to act for him by proxy (executed or transmitted in a manner permitted by the Delaware General Corporation Law), but no such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period. A duly executed proxy shall be irrevocable if it states that it is irrevocable and if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A proxy may remain irrevocable regardless of whether the interest with which it is coupled is an interest in the stock itself or an interest in the Corporation generally.

SECTION 11. RATIFICATION OF ACTS OF DIRECTORS AND OFFICERS. Except as otherwise provided by law or by the Certificate of Incorporation of the Corporation, any transaction or contract or act of the Corporation or of the directors or the officers of the Corporation may be ratified by the affirmative vote of the holders of the number of shares which would have been necessary to approve such transaction, contract or act at a meeting of stockholders, or by the written consent of stockholders in lieu of a meeting.

SECTION 12. CONDUCT OF MEETINGS.

(a) Chairman of Meeting. Meetings of stockholders shall be presided over by the Chairman of the Board, if any, or in the Chairman's absence by the Vice Chairman of the Board, if any, or in the Vice Chairman's absence by the Chief Executive Officer, or in the Chief Executive Officer's absence, by the President, or in the President's absence by a Vice President, or in the absence of all of the foregoing persons by a chairman designated by the Board of Directors, or in the absence of such designation by a chairman chosen by vote of the stockholders at the meeting. The Secretary shall act as secretary of the meeting, but in the Secretary's absence the chairman of the meeting may appoint any person to act as secretary of the meeting.

(b) Rules, Regulations and Procedures. The Board of Directors may adopt by resolution such rules, regulations and procedures for the conduct of any meeting of stockholders of the Corporation as it shall deem appropriate including, without limitation, such guidelines and procedures as it may deem appropriate regarding the participation by means of remote communication of stockholders and proxyholders not physically present at a meeting. Except to the extent inconsistent with such rules, regulations and procedures as adopted by the Board of Directors, the chairman of any meeting of stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the chairman of the meeting, may include, without limitation, the following: (i) the establishment of an agenda or order of business for the meeting; (ii) rules and procedures for maintaining order at the meeting and the safety of those present; (iii) limitations on attendance at or participation in the meeting to stockholders of record of the Corporation, their duly authorized and constituted proxies or such other persons as shall be determined; (iv) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (v) limitations on the time allotted to questions or comments by participants. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure.

SECTION 13. ACTION WITHOUT MEETING.

(a) Any action required or permitted to be taken at any annual or special meeting of stockholders of the Corporation, may be taken without a meeting, without prior notice and without a vote, if a consent or consents in writing, setting forth the action so taken, shall be delivered to the Corporation signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted.

(b) Prompt notice of the taking of the corporate action without a meeting by less than unanimous consent shall be given to those stockholders who have not consented in writing and who, if the action had been taken at a meeting, would have been entitled to notice of the meeting if the record date for such meeting had been the date that written consents signed by a sufficient number of holders to take the action were delivered to the Corporation.

(c) A telegram, cablegram or other electronic transmission consenting to an action to be taken and transmitted by a stockholder or proxy holder, or by a person or persons authorized to act for a stockholder or proxy holder, shall be deemed to be written, signed and dated for the purposes of this section, provided that any such telegram, cablegram or other electronic transmission sets forth or is delivered with information from which the Corporation can determine (i) that the telegram, cablegram or other electronic transmission was transmitted by the stockholder or proxy holder or by a person or persons authorized to act for the stockholder or proxy holder and (ii) the date on which such stockholder or proxy holder or authorized person or persons transmitted such telegram, cablegram or electronic transmission. The date on which such telegram, cablegram or electronic transmission is transmitted shall be deemed to be the date on which such consent was signed. No consent given by telegram, cablegram or other electronic transmission shall be deemed to have been delivered until such consent is reproduced in paper form and until such paper form shall be delivered to the Corporation by delivery to its registered office in the State of Delaware, its principal place of business or to an officer or agent of the Corporation having custody of the book in which the proceedings of meetings of stockholders are recorded. Any copy, facsimile or other reliable reproduction of a consent in writing may be substituted or used in lieu of the original writing for any and all purposes for which the original writing could be used, provided that such copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.

ARTICLE III.
DIRECTORS

SECTION 1. GENERAL POWERS. The business and affairs of the Corporation shall be managed by or under the direction of a Board of Directors, who may exercise all of the powers of the Corporation except as otherwise provided by law or the Certificate of Incorporation.

SECTION 2. NUMBER AND TENURE OF DIRECTORS. Subject to the rights of holders of any class or series of capital stock of the Corporation to elect directors, the number of directors of the Corporation shall be determined from time to time by the stockholders or the Board of Directors in a resolution adopted by the Board of Directors. Each director shall hold office until the next annual meeting of stockholders and until such director's successor is elected and qualified or until such director's earlier death, resignation or removal.

SECTION 3. ELECTION OF DIRECTORS. Except as otherwise provided in these Bylaws, directors shall be elected at the annual meeting of stockholders by such stockholders as have the right to vote on such election. Directors need not be residents of the State of Delaware. Directors need not be stockholders of the Corporation. Elections of directors need not be by written ballot.

SECTION 4. CHAIRMAN OF THE BOARD; VICE CHAIRMAN OF THE BOARD. The Board of Directors may appoint from its members a Chairman of the Board and a Vice Chairman of the Board, neither of whom need be an employee or officer of the Corporation. If the Board of Directors appoints a Chairman of the Board, such Chairman shall perform such duties and possess such powers as are assigned by the Board of Directors. If the Board of Directors appoints a Vice Chairman of the Board, such Vice Chairman shall perform such duties and possess such powers as are assigned by the Board of Directors. Unless otherwise provided by the Board of Directors, the Chairman of the Board or, in the Chairman's absence, the Vice Chairman of the Board, if any, shall preside at all meetings of the Board of Directors.

SECTION 5. QUORUM. The greater of (a) a majority of the directors at any time in office and (b) one-third of the number of directors fixed pursuant to Section 2 of Article III of these Bylaws shall constitute a quorum of the Board of Directors. If less than a quorum are present at a meeting of the Board of Directors, a majority of the directors present may adjourn the meeting from time to time without further notice other than announcement at the meeting, until such quorum shall be present.

SECTION 6. VOTING. The vote of the majority of the directors present at a meeting at which a quorum is present shall be the act of the Board of Directors, unless the Delaware General Corporation Law or the Certificate of Incorporation requires a vote of a greater number.

SECTION 7. VACANCIES. Subject to the rights of holders of any series of Preferred Stock to elect directors, unless and until filled by the stockholders, any vacancy or newly-created directorship on the Board of Directors, however occurring, may be filled by vote of a majority of the directors then in office, although less than a quorum, or by a sole remaining director. A director elected to fill a vacancy shall be elected for the unexpired term of such director's predecessor in office, and a director chosen to fill a position resulting from a newly-created directorship shall hold office until the next annual meeting of stockholders and until a successor is elected and qualified, or until such director's earlier death, resignation or removal.

SECTION 8. REMOVAL OF DIRECTORS. Except as otherwise provided by the General Corporation Law of the State of Delaware, a director, or the entire Board of Directors, may be removed, with or without cause, by the holders of a majority of the shares then entitled to vote at an election of directors, except that the directors elected by the holders of a particular class or series of stock may be removed without cause only by vote of the holders of a majority of the outstanding shares of such class or series.

SECTION 9. RESIGNATION. Any director may resign by delivering a resignation in writing or by electronic transmission to the Corporation at its principal office or to the Chairman of the Board, the Chief Executive Officer, the President or the Secretary. Such resignation shall be effective upon delivery unless it is specified to be effective at some later time or upon the happening of some later event.

SECTION 10. REGULAR MEETINGS. Regular meetings of the Board of Directors may be held without notice at such time, place and manner as shall be determined from time to time by the Board of Directors; provided that any director who is absent when such a determination is made shall be given notice of the determination. A regular meeting of the Board of Directors may be held without notice immediately after and at the same place as the annual meeting of stockholders.

SECTION 11. SPECIAL MEETINGS. Special meetings of the Board of Directors may be called by or at the request of the Chairman of the Board, the Chief Executive Officer, the President, two or more directors or by one director in the event that there is only a single director in office. The person or persons authorized to call special meetings of the Board of Directors may fix any time, date or place, either within or without the State of Delaware, for holding any special meeting of the Board of Directors called by them.

SECTION 12. NOTICE OF SPECIAL MEETINGS OF THE BOARD OF DIRECTORS. Notice of the date, place, if any, and time of any special meeting of the Board of Directors shall be given to each director by the Secretary or by the officer or one of the directors calling the meeting. Notice shall be duly given to each director (a) in person, by telephone, fax or by electronic transmission at least 24 hours in advance of the meeting, (b) by sending written notice by reputable overnight courier or delivering written notice by hand, to such director's last known business, home or facsimile address at least 48 hours in advance of the meeting, or (c) by sending written notice by first-class mail to such director's last known business or home address at least 72 hours in advance of the meeting. A notice or waiver of notice of a meeting of the Board of Directors need not specify the purposes of the meeting.

SECTION 13. WRITTEN ACTION BY DIRECTORS. Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors, or of any committee thereof, may be taken without a meeting if all members of the Board of Directors or committee, as the case may be, consent thereto in writing, and the writing or writings are filed with the minutes of proceedings of the Board of Directors or committee. Without limiting the manner by which consent may be given, members of the Board of Directors may consent by delivery of an electronic transmission when such transmission is directed to a facsimile number or electronic mail address at which the Corporation has consented to receive such electronic transmissions, and copies of the electronic transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

SECTION 14. PARTICIPATION BY CONFERENCE TELEPHONE. Members of the Board of Directors, or any committee designated by such board, may participate in a meeting of the Board of Directors, or committee thereof, by means of conference telephone or similar communications equipment as long as all persons participating in the meeting can speak with and hear each other, and participation by a director pursuant to this section shall constitute presence in person at such meeting.

SECTION 15. COMMITTEES. The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the Corporation with such lawfully delegable powers and duties as the Board of Directors thereby confers, to serve at the pleasure of the Board of Directors. The Board may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of a member at any meeting of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent provided in the resolution of the Board of Directors, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation, and may authorize the seal of

the Corporation to be affixed to all papers which may require it, but no such committee shall have the power or authority in reference to the following matters: (i) approving or adopting, or recommending to the stockholders, any action or matter (other than the election or removal of directors) expressly required by law to be submitted to stockholders for approval or (ii) adopting, amending or repealing any bylaw of the Corporation. Each such committee shall keep minutes and make such reports as the Board of Directors may from time to time request. Except as the Board of Directors may otherwise determine, any committee may make rules for the conduct of its business, but unless otherwise provided by the directors or in such rules, its business shall be conducted as nearly as possible in the same manner as is provided in these Bylaws for the Board of Directors. Except as otherwise provided in the Certificate of Incorporation, these Bylaws, or the resolution of the Board of Directors designating the committee, a committee may create one or more subcommittees, each subcommittee to consist of one or more members of the committee, and delegate to a subcommittee any or all of the powers and authority of the committee.

SECTION 16. COMPENSATION OF DIRECTORS. Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, the Board of Directors shall have the authority to fix the compensation of directors. The directors may be paid their expenses, if any, of attendance at each meeting of the Board of Directors and may be paid a fixed sum for attendance at each meeting of the Board of Directors or a stated salary as director. No such payment shall preclude any director from serving the Corporation in any other capacity and receiving compensation therefore. Members of special or standing committees may be allowed like compensation for attending committee meetings.

ARTICLE IV.
OFFICERS

SECTION 1. GENERAL PROVISIONS. The officers of the Corporation shall consist of a Chief Executive Officer, a President, a Secretary, a Treasurer and such other officers with such other titles as the Board of Directors shall determine, including one or more Vice Presidents, Assistant Treasurers and Assistant Secretaries. The Board of Directors may appoint such other officers as it may deem appropriate. No officer need be a stockholder. Any two or more offices may be held by the same person. The officers elected by the Board of Directors shall have such duties as are hereafter described and such additional duties as the Board of Directors may from time to time prescribe.

SECTION 2. ELECTION AND TERM OF OFFICE. The Chief Executive Officer, President, Treasurer and Secretary shall be elected annually by the Board of Directors at the regular meeting of the Board of Directors held after each annual meeting of the stockholders. If the election of officers is not held at such meeting, such election shall be held as soon thereafter as may be convenient. Other officers may be appointed at any time, at a meeting or by the written consent of the Board of Directors. Except as otherwise provided by law, by the Certificate of Incorporation or by these Bylaws, each officer shall hold office until his successor has been duly elected and qualified, unless a different term is specified in the resolution electing or appointing such officer, or until his earlier death, resignation or removal. Election or appointment of an officer or agent shall not of itself create contract rights.

SECTION 3. RESIGNATION AND REMOVAL OF OFFICERS. Any officer may resign by delivering a written resignation to the Corporation at its principal office or to the Chief Executive Officer, the President or the Secretary. Such resignation shall be effective upon receipt unless it is specified to be effective at some later time or upon the happening of some later event. Any officer may be removed at any time, with or without cause, by vote of a majority of the directors then in office. Except as the Board of Directors may otherwise determine, no officer who resigns or is removed shall have any right to any compensation as an officer for any period following such officer's resignation or removal, or any right to damages on account of such removal, whether such officer's compensation be by the month or by the year or otherwise, unless such compensation is expressly provided for in a duly authorized written agreement with the Corporation.

SECTION 4. VACANCIES. The Board of Directors may fill any vacancy occurring in any office for any reason and may, in its discretion, leave unfilled for such period as it may determine any offices other than those of Chief Executive Officer, President, Treasurer and Secretary. Each such successor shall hold office for the unexpired term of such officer's predecessor and until a successor is elected and qualified, or until such officer's earlier death, resignation or removal.

SECTION 5. THE CHIEF EXECUTIVE OFFICER. Unless the Board of Directors has designated another person as the Corporation's Chief Executive Officer, the President shall be the Chief Executive Officer of the Corporation. The Chief Executive Officer shall have general charge and supervision of the business and affairs of the Corporation subject to the direction of the Board of Directors, and shall perform all duties and have all powers that are commonly incident to the office of chief executive or that are delegated to such officer by the Board of Directors. The Chief Executive Officer shall preside at all meetings of the Board of Directors and shall see that orders and resolutions of the Board of Directors are carried into effect. The Chief Executive Officer may sign bonds, mortgages, certificates for shares and all other contracts and documents whether or not under the seal of the Corporation except in cases where the signing and execution thereof shall be expressly delegated by law, by the Board of Directors or by these Bylaws to some other officer or agent of the Corporation. The Chief Executive Officer shall have general powers of supervision and shall be the final arbiter of all differences between officers of the Corporation and his decision as to any matter affecting the Corporation shall be final and binding as between the officers of the Corporation subject only to the Board of Directors.

SECTION 6. THE PRESIDENT. In the absence of the Chief Executive Officer or in the event of his inability or refusal to act, the President shall perform the duties of the Chief Executive Officer, and when so acting, shall have all the powers of and be subject to all the restrictions upon the Chief Executive Officer. At all other times the President shall have the active management of the business of the Corporation under the general supervision of the Chief Executive Officer or the Board of Directors. The President shall have concurrent power with the Chief Executive Officer to sign bonds, mortgages, certificates for shares and other contracts and documents, whether or not under the seal of the Corporation except in cases where the signing and execution thereof shall be expressly delegated by law, by the Board of Directors, or by these Bylaws to some other officer or agent of the Corporation. In general, the President shall perform all duties incident to the office of president and such other duties as the Chief Executive Officer (if the President is not the Chief Executive Officer) or the Board of Directors may from time to time prescribe.

SECTION 7. THE VICE PRESIDENT. In the absence of the President or in the event of his inability or refusal to act, the Vice President (or in the event there be more than one Vice President, the Executive Vice President and then the other Vice President or Vice Presidents in the order designated, or in the absence of any designation, then in the order of their election) shall perform the duties of the President, and when so acting, shall have all the powers of and be subject to all the restrictions upon the President. The Vice Presidents shall perform such other duties and have such other powers as the Chief Executive Officer or the Board of Directors may from time to time prescribe.

SECTION 8. THE SECRETARY. The Secretary shall perform such duties and shall have such powers as the Board of Directors or the Chief Executive Officer may from time to time prescribe. The Secretary shall perform such duties and have such powers as are incident to the office of the secretary, including without limitation the duty and power to attend all meetings of the Board of Directors and all meetings of the stockholders and record all the proceedings in a book to be kept for that purpose and shall perform like duties for the standing committees when required and to maintain a stock ledger and prepare lists of stockholders and their addresses as required. The Secretary shall give, or cause to be given, notice of all meetings of the stockholders and special meetings of the Board of Directors, and shall perform such other duties as may be prescribed by the Board of Directors or the Chief Executive Officer, under whose supervision he shall be. The Secretary shall have custody of the corporate records and the corporate seal of the Corporation and the Secretary, or an Assistant Secretary, shall have authority to affix the same to any instrument requiring it and when so affixed, it may be attested by his signature or by the signature of such Assistant Secretary. The Board of Directors may give general authority to any other officer to affix the seal of the Corporation and to attest the affixing by his signature.

SECTION 9. THE ASSISTANT SECRETARY. The Assistant Secretary, or if there be more than one, the Assistant Secretaries in the order determined by the Board of Directors (or if there be no such determination, then in the order of their election), shall, in the absence of the Secretary or in the event of his inability or refusal to act, perform the duties and exercise the powers of the Secretary and shall perform such other duties and have such other powers as the Chief Executive Officer, the Board of Directors or the Secretary may from time to time prescribe. In the absence of the Secretary or any Assistant Secretary at any meeting of stockholders or directors, the chairman of the meeting shall designate a temporary secretary to keep a record of the meeting.

SECTION 10. THE TREASURER. The Treasurer shall perform such duties and shall have such powers as may from time to time be assigned by the Board of Directors or the Chief Executive Officer. In addition, the Treasurer shall perform such duties and have such powers as are incident to the office of treasurer, including without limitation, the duty and power to have the custody of the corporate funds and securities and to keep full and accurate accounts of receipts and disbursements in books belonging to the Corporation and deposit all moneys and other valuable effects in the name and to the credit of the Corporation in such depositories as may be designated by the Board of Directors. The Treasurer shall disburse the funds of the

Corporation as may be ordered by the Board of Directors, taking proper vouchers for such disbursements, and shall render to the President and the Board of Directors, as required by the Board of Directors, an account of all his transactions as Treasurer and of the financial condition of the Corporation. If required by the Board of Directors, the Treasurer shall give the Corporation a bond (which shall be renewed every six years) in such sum and with such surety or sureties as shall be satisfactory to the Board of Directors for the faithful performance of the duties of his office and for the restoration to the Corporation, in case of his death, resignation, retirement or removal from office, of all books, papers, vouchers, money and other property of whatever kind in his possession or under his control belonging to the Corporation.

SECTION 11. THE ASSISTANT TREASURER. The Assistant Treasurer, or if there shall be more than one, the Assistant Treasurers in the order determined by the Board of Directors (or if there be no such determination, then in the order of their election), shall, in the absence of the Treasurer or in the event of his inability or refusal to act, perform the duties and exercise the powers of the Treasurer and shall perform such other duties and have such other powers as the Chief Executive Officer, the Board of Directors or the Treasurer may from time to time prescribe.

SECTION 12. OTHER OFFICERS, ASSISTANT OFFICERS AND AGENTS. Officers, Assistant Officers and Agents, if any, other than those whose duties are provided for in these Bylaws, shall have such authority and perform such duties as may from time to time be prescribed by resolution of the Board of Directors.

SECTION 13. ABSENCE OF OFFICERS, DELEGATION OF AUTHORITY. In the absence of any officer of the Corporation, or for any other reason the Board of Directors may deem sufficient, the Board of Directors may from time to time delegate the powers or duties, or any of such powers or duties, of any officers or officer to any other officer or to any director.

SECTION 14. COMPENSATION. The Board of Directors shall have the authority to establish reasonable salaries, compensation or reimbursement of all officers for services to the Corporation.

ARTICLE V.
CAPITAL STOCK

SECTION 1. ISSUANCE OF STOCK. Subject to the provisions of the Certificate of Incorporation, the whole or any part of any unissued balance of the authorized capital stock of the Corporation or the whole or any part of any shares of the authorized capital stock of the Corporation held in the Corporation's treasury may be issued, sold, transferred or otherwise disposed of by vote of the Board of Directors in such manner, for such lawful consideration and on such terms as the Board of Directors may determine.

SECTION 2. CERTIFICATES OF SHARES; UNCERTIFICATED SHARES.

(a) The shares of the Corporation shall be represented by certificates, provided that the Board of Directors of the Corporation may provide by resolution or resolutions that some or all of any or all classes or series of its stock shall be uncertificated shares. Any such resolution shall not apply to shares represented by a certificate until such certificate is

surrendered to the Corporation. Every holder of stock represented by certificates shall be entitled to have a certificate, in such form as may be prescribed by law and by the Board of Directors, signed in a manner that complies with Section 158 of the Delaware General Corporation Law, representing the number of shares held by such holder registered in certificate form. Any or all the signatures on the certificate may be a facsimile or pdf.

(b) Each certificate for shares of stock which are subject to any restriction on transfer pursuant to the Certificate of Incorporation, these Bylaws, applicable securities laws or any agreement among any number of stockholders or among such holders and the Corporation shall have conspicuously noted on the face or back of the certificate either the full text of the restriction or a statement of the existence of such restriction.

(c) If the Corporation shall be authorized to issue more than one class of stock or more than one series of any class, the powers, designations, preferences and relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights shall be set forth in full or summarized on the face or back of each certificate representing shares of such class or series of stock, provided that in lieu of the foregoing requirements there may be set forth on the face or back of each certificate representing shares of such class or series of stock a statement that the Corporation will furnish without charge to each stockholder who so requests a copy of the full text of the powers, designations, preferences and relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

(d) Within a reasonable time after the issuance or transfer of uncertificated shares, the Corporation shall send to the registered owner thereof a written notice containing the information required to be set forth or stated on certificates pursuant to Sections 151, 156, 202(a) or 218(a) of the General Corporation Law of the State of Delaware or, with respect to Section 151 of the General Corporation Law of the State of Delaware, a statement that the Corporation will furnish without charge to each stockholder who so requests the powers, designations, preferences and relative participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

SECTION 3. SIGNATURES OF FORMER OFFICER, TRANSFER AGENT OR REGISTRAR. In case any officer, transfer agent, or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Corporation with the same effect as if such person or entity were such officer, transfer agent or registrar at the date of issue.

SECTION 4. TRANSFER OF SHARES. Transfers of shares of the Corporation shall be made only on the books of the Corporation, or by transfer agents designated to transfer shares of the Corporation. Subject to applicable law, shares of stock represented by certificates shall be transferred only on the books of the Corporation by the surrender to the Corporation or its transfer agent of the certificate representing such shares properly endorsed or accompanied by a written assignment or power of attorney properly executed, and with such proof of authority or the authenticity of signature as the Corporation or its transfer agent may reasonably require.

Except as may be otherwise required by law, by the Certificate of Incorporation or by these Bylaws, the Corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes, including the payment of dividends and the right to vote with respect to such stock, regardless of any transfer, pledge or other disposition of such stock until the shares have been transferred on the books of the Corporation in accordance with the requirements of these Bylaws.

SECTION 5. LOST, DESTROYED OR STOLEN CERTIFICATES. Whenever a certificate representing shares of the Corporation has been lost, destroyed or stolen, the holder thereof may file in the office of the Corporation an affidavit setting forth, to the best of his knowledge and belief, the time, place, and circumstance of such loss, destruction or theft together with a statement of indemnity and posting of such bond sufficient in the opinion of the Board of Directors to indemnify the Corporation against any claim that may be made against it on account of the alleged loss of any such certificate. Thereupon the Board may cause to be issued to such person or such person's legal representative a new certificate or a duplicate of the certificate alleged to have been lost, destroyed or stolen. In the exercise of its discretion, the Board of Directors may waive the indemnification and bond requirements provided herein.

SECTION 6. REGULATIONS. The issue, transfer, conversion and registration of shares of stock of the Corporation shall be governed by such other regulations as the Board of Directors may establish.

ARTICLE VI.
RESTRICTIONS ON TRANSFER AND RIGHT OF FIRST REFUSAL.

SECTION 1. TRANSFERS. If a holder of any shares of stock of the Corporation (a "Holder") proposes to sell, assign, transfer, pledge, hypothecate or otherwise dispose of, by operation of law or otherwise (collectively "Transfer") any such shares pursuant to a bona fide offer acceptable to such Holder, then Holder shall first give written notice of the proposed Transfer (the "Transfer Notice") to the Corporation. The Transfer Notice shall state the name the proposed transferee, the number of shares Holder proposes to transfer (the "Offered Shares"), whether the Offered Shares are vested or unvested shares, the price per share and all other material terms and conditions of the transfer, including any available exemption set forth in Section 4 below from the restrictions set forth in Sections 2 and 3 below and shall include a confirmation from the Holder that the proposed transferee is an accredited investor as defined in Rule 501(a) of Regulation D promulgated under the Securities Act of 1933, as amended (the "Securities Act").

SECTION 2. CONSENT TO TRANSFER. Following receipt of the Transfer Notice, the prior written consent of the Corporation (upon duly authorized action of its Board of Directors) shall be required (and such consent may be withheld) if such transfer (a) would be to an individual, company or any other form of entity identified by the Corporation as a potential competitor or considered by the Corporation to be unfriendly; (b) increases the risk of the Corporation having a class of equity security (other than an exempted security) held of record by either (i) 2,000 or more persons, provided, however, that such restriction shall only apply after the Corporation has a class of equity security (other than an exempted security) held of record by more than 1,000 persons or (ii) 500 or more persons who are not accredited investors, as

described in Section 12(g) of the Securities and Exchange Act of 1934 (the "1934 Act"), and Rule 12g5-1 promulgated thereunder, or otherwise requiring the Corporation to register any class of securities under the 1934 Act; (c) would result in the loss of any federal or state securities law exemption relied upon by the Corporation in connection with the initial issuance of such shares or the issuance of any other securities; (d) is facilitated in any manner by any public posting, message board, trading portal, internet site or similar method of communication, including without limitation any trading portal or internet site intended to facilitate secondary transfers of securities; (e) is to be effected in a brokered transaction; (f) represents a transfer of less than all of the shares then held by the stockholder and its affiliates or is to be made to more than a single transferee or (g) is determined by the Corporation's Board of Directors to require such consent for any legitimate corporate purpose. The Corporation shall notify Holder within 30 days of receipt of the Transfer Notice indicating whether the proposed transfer requires such consent and if so, whether such consent has been provided (a "Transfer Approval") or withheld (a "Transfer Denial" and together with "Transfer Approval", the "Transfer Determination"). For purposes of clarity, a Holder shall not be entitled to Transfer any shares if such proposed transfer results in a Transfer Denial.

SECTION 3. RIGHT OF FIRST REFUSAL.

(a) Subject to the exceptions set forth in Section 3(e) below, for 30 days following a Transfer Determination that results in a Transfer Approval, the Corporation shall have the option to purchase all or part of the Offered Shares at the price and upon the terms set forth in the Transfer Notice (the "Right of First Refusal"). In the event the Corporation elects to purchase all or part of the Offered Shares, it shall give written notice of such election to the Holder within such 30 day period. Within 10 days after Holder's receipt of such notice, Holder shall tender to the Corporation at its principal offices the certificate or certificates representing the Offered Shares to be purchased by the Corporation, duly endorsed in blank by Holder or with duly endorsed stock powers attached thereto, all in a form suitable for transfer of the Offered Shares to the Corporation. Promptly following receipt of such certificate or certificates, the Corporation shall deliver or mail to Holder a check in payment of the purchase price for such Offered Shares; provided that if the terms of payment set forth in the Transfer Notice were other than cash against delivery, the Corporation may pay for the Offered Shares on the same terms and conditions as were set forth in the Transfer Notice.

(b) If the Corporation does not elect to acquire any of the Offered Shares, Holder may, within the 30-day period following the expiration of the option granted to the Corporation under Section 3(a) above, transfer the Offered Shares that the Corporation has not elected to acquire to the proposed transferee, provided that such transfer shall not be on terms and conditions more favorable to the transferee than those contained in the Transfer Notice, such transfer shall be only to a prospective transferee that is an accredited investor as defined in Rule 501(a) of Regulation D promulgated under the Securities Act and such transfer shall comply with the Securities Act. Notwithstanding any of the above, all Offered Shares transferred pursuant to this Section 3 shall remain subject to these Bylaws and any equity grant agreement such Offered Shares were subject to and such transferee shall, as a condition to such transfer, deliver to the Corporation a written instrument confirming that such transferee shall be bound by all of the terms and conditions of these Bylaws and any applicable equity grant agreement.

(c) After the time at which the Offered Shares are required to be delivered to the Corporation for transfer to the Corporation pursuant to subsection 3(a) above, the Corporation shall not pay any dividend to Holder on account of such Offered Shares or permit Holder to exercise any of the privileges or rights of a stockholder with respect to such Offered Shares, but shall, insofar as permitted by law, treat the Corporation as the owner of such Offered Shares.

(d) The Corporation may assign its Right of First Refusal in any particular transaction under this Section 3 to one or more persons or entities.

(e) The provisions of this Section 3 shall not apply to any Transfer of Preferred Stock of the Corporation or the shares of Common Stock issued upon conversion thereof.

SECTION 4. EXCEPTIONS.

(a) The provisions of this Article VI may be waived with respect to any Transfer upon duly authorized action of its Board of Directors.

(b) The following transactions shall be exempt from the restrictions set forth in Article VI, Section 3:

(A) any transfer to or for the benefit of any spouse, children, parents, uncles, aunts, siblings, grandchildren and any other relatives approved by the Board of Directors (collectively, "Approved Relatives") or to a trust established solely for the benefit of the purchaser and/or Approved Relatives;

(B) any transfer made as part of the sale of all or substantially all of the shares of capital stock of the Corporation (including pursuant to a merger or consolidation);

(C) any transfer pursuant to an effective registration statement filed by the Corporation under the Securities Act;

(D) a stockholder's bona fide pledge or mortgage of any Common Stock with a commercial lending institution;

(E) a corporate stockholder's transfer of any or all of its shares pursuant to and in accordance with the terms of any merger, consolidation, reclassification of common stock or capital reorganization of the corporate stockholder, or pursuant to a sale of all or substantially all of the stock or assets of a corporate stockholder;

(F) a corporate stockholder's transfer of any or all of its shares to any or all of its stockholders; and

(G) a transfer of any or all of the shares held by a stockholder which is a limited or general partnership to any or all of its partners.

(c) In the case of a transfer pursuant to Sections 4(b)(A) and (D)-(G) above, such shares shall remain subject to these Bylaws and any existing equity grant agreement and such transferee shall, as a condition to such transfer, deliver to the Corporation a written instrument confirming that such transferee shall be bound by all of the terms and conditions of these Bylaws and any applicable equity grant agreement and there shall be no further transfer of such shares except in accordance with these Bylaws.

SECTION 5. TERMINATION. The provisions of Article VI shall terminate upon the closing of the sale of shares of common stock in an underwritten public offering pursuant to an effective registration statement filed by the Corporation under the Securities Act.

SECTION 6. VOID TRANSFERS. The Corporation shall not be required (a) to transfer on its books any shares which shall have been sold or otherwise transferred in violation of any of the provisions of this Article VI or (b) to treat as owner of such shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom any such shares shall have been so sold or transferred.

SECTION 7. LEGENDS. The books and records of the Corporation and any certificates representing shares of stock of the Corporation shall contain or bear the following legend so long as the foregoing Transfer restrictions are in effect:

> THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO (i) TRANSFER RESTRICTIONS AND (ii) A RIGHT OF FIRST REFUSAL OPTION IN FAVOR OF THE CORPORATION AND/OR ITS ASSIGNEE(S), EACH AS PROVIDED IN THE BYLAWS OF THE CORPORATION.

SECTION 8. CONFLICTS. To the extent the Corporation has entered into any written agreement with the stockholder attempting to Transfer shares that contains terms restricting such Transfer and grants the Corporation a right of first refusal with respect thereto ("Separate ROFR Terms"), then such Separate ROFR Terms shall supersede this Article VI and shall control such stockholder's proposed Transfer of shares.

ARTICLE VII.
INDEMNIFICATION

SECTION 1. RIGHT TO INDEMNIFICATION OF DIRECTORS AND OFFICERS. The Corporation shall indemnify and hold harmless, to the fullest extent permitted by applicable law as it presently exists or may hereafter be amended, any person (an "Indemnified Person") who was or is made or is threatened to be made a party or is otherwise involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative (a "Proceeding"), by reason of the fact that such person, or a person for whom such person is the legal representative, is or was a director or officer of the Corporation or, while a director or officer of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation or of a partnership, joint venture, limited liability company, trust, enterprise or nonprofit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including attorneys' fees) reasonably incurred by such

Indemnified Person in such Proceeding. Notwithstanding the preceding sentence, except as otherwise provided in Section 3 of this Article VII, the Corporation shall be required to indemnify an Indemnified Person in connection with a Proceeding (or part thereof) commenced by such Indemnified Person only if the commencement of such Proceeding (or part thereof) by the Indemnified Person was authorized in advance by the Board of Directors.

SECTION 2. PREPAYMENT OF EXPENSES OF DIRECTORS AND OFFICERS. The Corporation shall pay the expenses (including attorneys' fees) incurred by an Indemnified Person in defending any Proceeding in advance of its final disposition, provided, however, that, to the extent required by law, such payment of expenses in advance of the final disposition of the Proceeding shall be made only upon receipt of an undertaking by the Indemnified Person to repay all amounts advanced if it should be ultimately determined that the Indemnified Person is not entitled to be indemnified under this Article VII or otherwise.

SECTION 3. CLAIMS BY DIRECTORS AND OFFICERS. If a claim for indemnification or advancement of expenses under this Article VII is not paid in full within 30 days after a written claim therefor by the Indemnified Person has been received by the Corporation, the Indemnified Person may file suit to recover the unpaid amount of such claim and, if successful in whole or in part, shall be entitled to be paid the expense of prosecuting such claim. In any such action the Corporation shall have the burden of proving that the Indemnified Person is not entitled to the requested indemnification or advancement of expenses under applicable law.

SECTION 4. INDEMNIFICATION OF EMPLOYEES AND AGENTS. The Corporation may indemnify and advance expenses to any person who was or is made or is threatened to be made or is otherwise involved in any Proceeding by reason of the fact that such person, or a person for whom such person is the legal representative, is or was an employee or agent of the Corporation or, while an employee or agent of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation or of a partnership, joint venture, limited liability company, trust, enterprise or nonprofit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including attorneys' fees) reasonably incurred by such person in connection with such Proceeding. The ultimate determination of entitlement to indemnification of persons who are non-director or officer employees or agents shall be made in such manner as is determined by the Board of Directors in its sole discretion. Notwithstanding the foregoing sentence, the Corporation shall not be required to indemnify a person in connection with a Proceeding initiated by such person if the Proceeding was not authorized in advance by the Board of Directors.

SECTION 5. ADVANCEMENT OF EXPENSES OF EMPLOYEES AND AGENTS. The Corporation may pay the expenses (including attorneys' fees) incurred by an employee or agent in defending any Proceeding in advance of its final disposition on such terms and conditions as may be determined by the Board of Directors.

SECTION 6. NON-EXCLUSIVITY OF RIGHTS. The rights conferred on any person by this Article VII shall not be exclusive of any other rights which such person may have or hereafter acquire under any statute, provision of the Certificate of Incorporation, these bylaws, agreement, vote of stockholders or disinterested directors or otherwise.

SECTION 7. OTHER INDEMNIFICATION. The Corporation's obligation, if any, to indemnify any person who was or is serving at its request as a director, officer or employee of another corporation, partnership, limited liability company, joint venture, trust, organization or other enterprise shall be reduced by any amount such person may collect as indemnification from such other corporation, partnership, limited liability company, joint venture, trust, organization or other enterprise.

SECTION 8. INSURANCE. The Board of Directors may, to the full extent permitted by applicable law as it presently exists, or may hereafter be amended from time to time, authorize an appropriate officer or officers to purchase and maintain at the Corporation's expense insurance: (a) to indemnify the Corporation for any obligation which it incurs as a result of the indemnification of directors, officers and employees under the provisions of this Article VII; and (b) to indemnify or insure directors, officers and employees against liability in instances in which they may not otherwise be indemnified by the Corporation under the provisions of this Article VII.

SECTION 9. AMENDMENT OR REPEAL. Any repeal or modification of the foregoing provisions of this Article VII shall not adversely affect any right or protection hereunder of any person in respect of any act or omission occurring prior to the time of such repeal or modification. The rights provided hereunder shall inure to the benefit of any Indemnified Person and such person's heirs, executors and administrators.

ARTICLE VIII.
DIVIDENDS

SECTION 1. DECLARATIONS OF DIVIDENDS. Dividends upon the capital stock of the Corporation, subject to the provisions of the Certificate of Incorporation, if any, may be declared by the Board of Directors at any regular or special meeting, pursuant to law. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the Certificate of Incorporation.

SECTION 2. SPECIAL PURPOSES RESERVES. The Board of Directors may set apart out of any of the funds of the Corporation available for dividends a reserve or reserves for any proper purpose and may abolish any such reserve.

ARTICLE IX.
NOTICE BY ELECTRONIC TRANSMISSION

SECTION 1. NOTICE BY ELECTRONIC TRANSMISSION. Without limiting the manner by which notice otherwise may be given effectively to stockholders pursuant to the Delaware General Corporation Law, the Certificate of Incorporation or these Bylaws, any notice to stockholders given by the Corporation under any provision of the Delaware General Corporation Law, the Certificate of Incorporation or these Bylaws shall be effective if given by a form of electronic transmission consented to by the stockholder to whom the notice is given. Any such consent shall be revocable by the stockholder by written notice to the Corporation. Any such consent shall be deemed revoked if:

(a) the Corporation is unable to deliver by electronic transmission two consecutive notices given by the Corporation in accordance with such consent; and

(b) such inability becomes known to the secretary or an assistant secretary of the Corporation or to the transfer agent, or other person responsible for the giving of notice.

However, the inadvertent failure to treat such inability as a revocation shall not invalidate any meeting or other action.

Any notice given pursuant to the preceding paragraph shall be deemed given:

(c) if by facsimile telecommunication, when directed to a number at which the stockholder has consented to receive notice;

(d) if by electronic mail, when directed to an electronic mail address at which the stockholder has consented to receive notice;

(e) if by a posting on an electronic network together with separate notice to the stockholder of such specific posting, upon the later of (A) such posting and (B) the giving of such separate notice; and

(f) if by any other form of electronic transmission, when directed to the stockholder.

An affidavit of the secretary or an assistant secretary or of the transfer agent or other agent of the Corporation that the notice has been given by a form of electronic transmission shall, in the absence of fraud, be *prima facie* evidence of the facts stated therein.

SECTION 2. DEFINITION OF ELECTRONIC TRANSMISSION. An "electronic transmission" means any form of communication, not directly involving the physical transmission of paper, that creates a record that may be retained, retrieved, and reviewed by a recipient thereof, and that may be directly reproduced in paper form by such a recipient through an automated process.

SECTION 3. INAPPLICABILITY. Notice by a form of electronic transmission shall not apply to Sections 164, 296, 311, 312 or 324 of the Delaware General Corporation Law.

ARTICLE X.
GENERAL PROVISIONS

SECTION 1. FISCAL YEAR. The fiscal year of the Corporation shall be fixed by resolution of the Board of Directors.

SECTION 2. SEAL. The corporate seal shall have inscribed thereon the name of the Corporation, the year of its organization and the words "Corporate Seal, Delaware" or such other form as shall be approved by the Board of Directors. Said seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

SECTION 3. WRITTEN WAIVER OF NOTICE. A written waiver of any notice required to be given by law, the Certificate of Incorporation or by these Bylaws, signed by or electronically transmitted by the person entitled to notice, whether before, at or after the time of the event for which notice is to be given, shall be deemed equivalent to notice required to be given to such person. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of stockholders, directors or members of a committee of directors need be specified in any written waiver of notice.

SECTION 4. ATTENDANCE AS WAIVER OF NOTICE. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting at the beginning of the meeting, and objects, to the transaction of any business because the meeting is not lawfully called or convened.

SECTION 5. CONTRACTS. The Board of Directors may authorize any officer or officers, agent or agents, to enter into any contract or execute and deliver any instrument in the name of and on behalf of the Corporation, and such authority may be general or confined to specific instances.

SECTION 6. LOANS. No loans shall be contracted on behalf of the Corporation and no evidences of indebtedness shall be issued in its name unless authorized by a resolution of the Board of Directors. Such authority may be general or confined to specific instances.

SECTION 7. CHECKS, DRAFTS, ETC. All checks, drafts or other orders for the payment of money, notes or other evidences of indebtedness issued in the name of the Corporation shall be signed by one or more officers or agents of the Corporation and in such manner as shall from time to time be determined by resolution of the Board of Directors.

SECTION 8. DEPOSITS. The funds of the Corporation may be deposited or invested in such bank account, in such investments or with such other depositaries as determined by the Board of Directors.

SECTION 9. ANNUAL STATEMENT. The Board of Directors shall present at each annual meeting, and at any special meeting of the stockholders when called for by vote of the stockholders, a full and clear statement of the business and condition of the Corporation.

SECTION 10. VOTING OF SECURITIES. Except as the Board of Directors may otherwise designate, the Chief Executive Officer, the President or the Treasurer may waive notice of, vote, or appoint any person or persons to vote, on behalf of the Corporation at, and act as, or appoint any person or persons to act as, proxy or attorney-in-fact for this Corporation (with or without power of substitution) at, any meeting of stockholders or securityholders of any other entity, the securities of which may be held by this Corporation.

SECTION 11. EVIDENCE OF AUTHORITY. A certificate by the Secretary, or an Assistant Secretary, or a temporary Secretary, as to any action taken by the stockholders, directors, a committee or any officer or representative of the Corporation shall as to all persons who rely on the certificate in good faith be conclusive evidence of such action.

SECTION 12. CERTIFICATE OF INCORPORATION. All references in these Bylaws to the Certificate of Incorporation shall be deemed to refer to the Certificate of Incorporation of the Corporation, as amended and in effect from time to time.

SECTION 13. SEVERABILITY. Any determination that any provision of these Bylaws is for any reason inapplicable, illegal or ineffective shall not affect or invalidate any other provision of these Bylaws.

SECTION 14. PRONOUNS. All pronouns used in these Bylaws shall be deemed to refer to the masculine, feminine or neuter, singular or plural, as the identity of the person or persons may require.

ARTICLE XI.
AMENDMENTS

SECTION 1. BY THE BOARD OF DIRECTORS. These Bylaws may be altered, amended or repealed, in whole or in part, or new Bylaws may be adopted by the Board of Directors, when such power is conferred upon the Board of Directors by the Certificate of Incorporation.

SECTION 2. BY THE STOCKHOLDERS. These Bylaws may be altered, amended or repealed, in whole or in part, or new Bylaws may be adopted, by the affirmative vote of the holders of a majority of the shares of the capital stock of the Corporation issued and outstanding and entitled to vote at any annual meeting of stockholders, or at any special meeting of stockholders, provided notice of such alteration, amendment, repeal or adoption of new Bylaws shall have been stated in the notice of such special meeting. If the power to adopt, amend or repeal Bylaws is conferred upon the Board of Directors by the Certificate of Incorporation it shall not divest or limit the power of the stockholders to adopt, amend or repeal Bylaws.

Exhibit 4.2

Execution Version

SPRUCE BIOSCIENCES, INC.

AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

February 19, 2020

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AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

THIS AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT (this "**Agreement**"), is made as of February 19, 2020, by and among Spruce Biosciences, Inc., a Delaware corporation (the "**Company**"), and each of the investors listed on Schedule A hereto (together with any subsequent investors or transferees, who become parties to this Agreement in accordance with Section 6.9 hereof, each an "**Investor**" and together the "**Investors**").

RECITALS

WHEREAS, the Company and certain of the Investors (the "**Existing Investors**") previously entered into an Amended and Restated Investors' Rights Agreement dated as of February 15, 2019 (the "**Prior Agreement**") pursuant to which the Company granted to such Existing Investors certain rights;

WHEREAS, concurrently with the execution of this Agreement, the Company and the Investors are entering into a Series B Preferred Stock Purchase Agreement (as may be amended from time to time, the "**Purchase Agreement**") pursuant to which the Investors have agreed to purchase shares of the Company's Series B Preferred Stock;

WHEREAS, the Company and the Existing Investors each desire to amend and restate the Prior Agreement to provide that this Agreement shall govern the rights of the Investors to cause the Company to register shares of Common Stock issuable to the Investors, to receive certain information from the Company, and to participate in future equity offerings by the Company, and shall govern certain other matters as set forth in this Agreement; and

WHEREAS, the obligations of the Company and the Investors under the Purchase Agreement are conditioned upon, among other things, the execution and delivery of this Agreement by the Company and the Investors.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Definitions. For purposes of this Agreement:

"**Affiliate**" means, with respect to any specified Person, any other Person who, directly or indirectly, controls, is controlled by, or is under common control with such Person, including without limitation any general partner, managing member, officer or director of such Person or any venture capital fund or registered investment company now or hereafter existing that is controlled by one or more general partners, managing members or investment advisers of, or shares the same management company or investment adviser with, such Person.

"**Common Stock**" means shares of the Company's common stock, par value $0.0001 per share.

"**Competitor**" means a Person engaged, directly or indirectly (including through any partnership, limited liability company, corporation, joint venture or similar arrangement (whether now existing or formed hereafter)), in a business that offers products or services that are directly or indirectly competitive with the products or services of the Company, including products or services which are in actual or demonstrably anticipated research or development by the Company, but shall not include any financial investment firm or collective investment vehicle that, together with its Affiliates, holds less than twenty percent (20)% of the outstanding equity of any Competitor and does not, nor do any of its Affiliates, have a right to designate any members of the board of directors of any Competitor. Notwithstanding the foregoing, in no event shall Novo Holdings A/S (together with its Affiliates, "**Novo**"), RiverVest Venture Fund III, L.P. (together with its Affiliates, "**RiverVest**"), Omega Fund VI, L.P. (together with its Affiliates, "**Omega**"), Abingworth Bioventures VII LP (together with its Affiliates, "**Abingworth**"), Aisling Capital V, LP (together with its Affiliates, "**Aisling**"), HealthCap VIII L.P. (together with its Affiliates, "**HealthCap**"), Citadel Multi-Strategy Equities Master Fund Ltd. (together with its Affiliates, "**Surveyor**"), Sands Capital Life Sciences Pulse Fund, LLC (together with its Affiliates, "**Sands**") or Rock Springs Capital Master Fund (together with its Affiliates, "**Rock Springs**") and collectively with Novo, RiverVest, Omega, Abingworth, Aisling, HealthCap, Sands, and Surveyor, the "**Funds**") be deemed a Competitor.

"**Damages**" means any loss, damage, claim or liability (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act, or other federal or state law, insofar as such loss, damage, claim or liability (or any action in respect thereof) arises out of or is based upon: (i) any untrue statement or alleged untrue statement of a material fact contained in any registration statement of the Company, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto; (ii) an omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading; or (iii) any violation or alleged violation by the indemnifying party (or any of its agents or Affiliates) of the Securities Act, the Exchange Act, any state securities law, or any rule or regulation promulgated under the Securities Act, the Exchange Act, or any state securities law.

"**Derivative Securities**" means any securities or rights convertible into, or exercisable or exchangeable for (in each case, directly or indirectly)**,** Common Stock, including options and warrants.

"**Exchange Act**" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

"**Excluded Registration**" means (i) a registration relating to the sale of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; (ii) a registration relating to an SEC Rule 145 transaction; (iii) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (iv) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

"**Form S-1**" means such form under the Securities Act as in effect on the date hereof or any successor registration form under the Securities Act subsequently adopted by the SEC.

"**Form S-3**" means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC that permits incorporation of substantial information by reference to other documents filed by the Company with the SEC.

"**GAAP**" means generally accepted accounting principles in the United States.

"**Holder**" means any holder of Registrable Securities who is a party to this Agreement.

"**Immediate Family Member**" means a child, stepchild, grandchild, parent, stepparent, grandparent, spouse, domestic partner, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including, adoptive relationships, of a natural person referred to herein.

"**Initiating Holders**" means, collectively, Holders who properly initiate a registration request under this Agreement.

"**IPO**" means the Company's first underwritten public offering of its Common Stock under the Securities Act.

"**Key Employee**" means any executive-level employee (including, division director and vice president-level positions) as well as any employee who, either alone or in concert with others, develops, invents, programs, or designs any Company Intellectual Property (as defined in the Purchase Agreement)

"**Major Investor**" means any Investor that, individually or together with such Investor's Affiliates, holds at least (a) 2,000,000 shares of Registrable Securities (as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification effected after the date hereof) after the consummation of the Initial Closing (as defined in the Purchase Agreement) and (b) 4,000,000 shares of Registrable Securities (as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification effected after the date hereof) after the consummation of the Secondary Closing (as defined in the Purchase Agreement). For the avoidance of doubt, any Investor who does not participate in the Secondary Closing (as defined in the Purchase Agreement) (other than such Investor who does not participate in the Secondary Closing as a result of a CFIUS Exception (as defined in the Purchase Agreement)), if such closing shall occur, by purchasing such Investor's Secondary Closing Share Amount (taking into account any Secondary Closing Shares purchased at an Elective Secondary Closing by such Investor) (each as defined in the Purchase Agreement) shall not be considered a Major Investor.

"**New Securities**" means, collectively, equity securities of the Company, whether or not currently authorized, as well as rights, options, or warrants to purchase such equity securities, or securities of any type whatsoever that are, or may become, convertible or exchangeable into or exercisable for such equity securities.

"**Person**" means any individual, corporation, partnership, trust, limited liability company, association or other entity.

"**Preferred Stock**" means, collectively, shares of the Company's Series A Preferred Stock and shares of the Company's Series B Preferred Stock.

"**Registrable Securities**" means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock; (ii) any Common Stock, or any Common Stock issued or issuable (directly or indirectly) upon conversion and/or exercise of any other securities of the Company acquired by the Investors after the date hereof and (iii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares referenced in clauses (i) and (ii) above; excluding in all cases, however, any Registrable Securities sold by a Person in a transaction in which the applicable rights under this Agreement are not assigned pursuant to Subsection 6.1, and excluding for purposes of Section 2 any shares for which registration rights have terminated pursuant to Subsection 2.13 of this Agreement.

"**Registrable Securities then outstanding**" means the number of shares determined by adding the number of shares of outstanding Common Stock that are Registrable Securities and the number of shares of Common Stock issuable (directly or indirectly) pursuant to then exercisable and/or convertible securities that are Registrable Securities.

"**Restated Certificate**" means the Company's Amended and Restated Certificate of Incorporation, as may be amended from time to time.

"**Restricted Securities**" means the securities of the Company required to be notated with the legend set forth in Subsection 2.12(b) hereof.

"**SEC**" means the Securities and Exchange Commission.

"**SEC Rule 144**" means Rule 144 promulgated by the SEC under the Securities Act.

"**SEC Rule 145**" means Rule 145 promulgated by the SEC under the Securities Act.

"**Securities Act**" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

"**Selling Expenses**" means all underwriting discounts, selling commissions, and stock transfer taxes applicable to the sale of Registrable Securities, and fees and disbursements of counsel for any Holder, except for the fees and disbursements of the Selling Holder Counsel borne and paid by the Company as provided in Subsection 2.6.

"**Series A Preferred Stock**" means shares of the Company's Series A Preferred Stock, par value $0.0001 per share.

"**Series B Preferred Stock**" means shares of the Company's Series B Preferred Stock, par value $0.0001 per share.

"**Significant Investor**" means each of Novo, RiverVest, Omega, Abingworth and HealthCap for so long as such respective Person is a Major Investor.

"**Significant Investor Majority**" means (i) at least four (4) Significant Investors for so long as there are five (5) Significant Investors, (ii) at least three (3) Significant Investors for so long as there are four (4) Significant Investors, (iii) at least two (2) Significant Investors for so long as there are three (3) Significant Investors and (iv) all of the remaining Significant Investors for so long as there are one (1) or two (2) Significant Investors.

2. Registration Rights. The Company covenants and agrees as follows:

2.1 Demand Registration.

(a) Form S-1 Demand. If at any time after the earlier of (i) five (5) years after the date of this Agreement or (ii) one hundred eighty (180) days after the effective date of the registration statement for the IPO, the Company receives a request from Holders of a majority of the Registrable Securities then outstanding that the Company file a Form S-1 registration statement, for an aggregate offering price of at least $5,000,000, then the Company shall (x) within ten (10) days after the date such request is given, give notice thereof (the "**Demand Notice**") to all Holders other than the Initiating Holders; and (y) as soon as practicable, and in any event within sixty (60) days after the date such request is given by the Initiating Holders, file a Form S-1 registration statement under the Securities Act covering all Registrable Securities that the Initiating Holders requested to be registered and any additional Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(b) Form S-3 Demand. If at any time when it is eligible to use a Form S-3 registration statement, the Company receives a request from Holders of the Registrable Securities then outstanding that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated aggregate offering price, net of Selling Expenses, of at least $1 million, then the Company shall (i) within ten (10) days after the date such request is given, give a Demand Notice to all Holders other than the Initiating Holders; and (ii) as soon as practicable, and in any event within forty-five (45) days after the date such request is given by the Initiating Holders, file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(c) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this Subsection 2.1 a certificate signed by the Company's chief executive officer stating that in the good faith judgment of the Company's Board of Directors it would be materially detrimental to the Company and its stockholders for such registration statement to either become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because

such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company; (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential; or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing, and any time periods with respect to filing or effectiveness thereof shall be tolled correspondingly, for a period of not more than ninety (90) days after the request of the Initiating Holders is given; provided, however, that the Company may not invoke this right more than twice in any twelve (12) month period; and provided further that the Company shall not register any securities for its own account or that of any other stockholder during such ninety (90) day period other than an Excluded Registration.

(d) The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(a) (i) during the period that is sixty (60) days before the Company's good faith estimate of the date of filing of, and ending on a date that is one hundred eighty (180) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; (ii) after the Company has effected two registrations pursuant to Subsection 2.1(a); or (iii) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Subsection 2.1(b). The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(b) (i) during the period that is thirty (30) days before the Company's good faith estimate of the date of filing of, and ending on a date that is ninety (90) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; or (ii) if the Company has effected two registrations pursuant to Subsection 2.1(b) within the twelve (12) month period immediately preceding the date of such request. A registration shall not be counted as "effected" for purposes of this Subsection 2.1(d) until such time as the applicable registration statement has been declared effective by the SEC, unless the Initiating Holders withdraw their request for such registration, elect not to pay the registration expenses therefor, and forfeit their right to one demand registration statement pursuant to Subsection 2.6, in which case such withdrawn registration statement shall be counted as "effected" for purposes of this Subsection 2.1(d).

2.2 Company Registration. If the Company proposes to register (including, for this purpose, a registration effected by the Company for stockholders other than the Holders) any of its Common Stock under the Securities Act in connection with the public offering of such securities solely for cash (other than in an Excluded Registration), the Company shall, at such time, promptly give each Holder notice of such registration. Upon the request of each Holder given within twenty (20) days after such notice is given by the Company, the Company shall, subject to the provisions of Subsection 2.3, cause to be registered all of the Registrable Securities that each such Holder has requested to be included in such registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this Subsection 2.2 before the effective date of such registration, whether or not any Holder has elected to include Registrable Securities in such registration. The expenses (other than Selling Expenses) of such withdrawn registration shall be borne by the Company in accordance with Subsection 2.6.

2.3 Underwriting Requirements.

(a) If, pursuant to Subsection 2.1, the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to Subsection 2.1, and the Company shall include such information in the Demand Notice. The underwriter(s) will be selected by the Company and shall be reasonably acceptable to a majority in interest of the Initiating Holders. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in Subsection 2.4(e)) enter into an underwriting agreement in customary form with the underwriter(s) selected for such underwriting; provided, however, that no Holder (or any of their assignees) shall be required to make any representations, warranties or indemnities except as they relate to such Holder's ownership of shares and authority to enter into the underwriting agreement and to such Holder's intended method of distribution, and the liability of such Holder shall be limited to an amount equal to the net proceeds from the offering received by such Holder. Notwithstanding any other provision of this Subsection 2.3, if the managing underwriter(s) advise(s) the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities that otherwise would be underwritten pursuant hereto, and the number of Registrable Securities that may be included in the underwriting shall be allocated among such Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as practicable) to the number of Registrable Securities owned by each Holder or in such other proportion as shall mutually be agreed to by all such selling Holders; provided, however, that the number of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares.

(b) In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant to Subsection 2.2, the Company shall not be required to include any of the Holders' Registrable Securities in such underwriting unless the Holders seeking to sell Registrable Securities in such offering accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters in their sole discretion determine will not jeopardize the success of the offering by the Company. If the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the number of securities to be sold (other than by the Company) that the underwriters in their reasonable discretion determine is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company in their sole discretion determine will not jeopardize the success of the offering. If the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering, then the Registrable Securities that are included in such offering shall be allocated among the selling Holders in proportion (as nearly as practicable to) the number of Registrable Securities owned by each selling Holder or in

such other proportions as shall mutually be agreed to by all such selling Holders. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares. Notwithstanding the foregoing, in no event shall (i) the number of Registrable Securities included in the offering be reduced unless all other securities (other than securities to be sold by the Company) are first entirely excluded from the offering, or (ii) the number of Registrable Securities included in the offering be reduced below thirty percent (30%) of the total number of securities included in such offering, unless such offering is the IPO, in which case the selling Holders may be excluded further if the underwriters make the determination described above and no other stockholder's securities are included in such offering. For purposes of the provision in this Subsection 2.3(b) concerning apportionment, for any selling Holder that is a partnership, limited liability company, or corporation, the partners, members, retired partners, retired members, stockholders, and Affiliates of such Holder, or the estates and Immediate Family Members of any such partners, retired partners, members, and retired members and any trusts for the benefit of any of the foregoing Persons, shall be deemed to be a single "selling Holder," and any *pro rata* reduction with respect to such "selling Holder" shall be based upon the aggregate number of Registrable Securities owned by all Persons included in such "selling Holder," as defined in this sentence.

(c) For purposes of Subsection 2.1, a registration shall not be counted as "effected" if, as a result of an exercise of the underwriter's cutback provisions in Subsection 2.3(a), fewer than fifty percent (50%) of the total number of Registrable Securities that Holders have requested to be included in such registration statement are actually included

2.4 Obligations of the Company. Whenever required under this Section 2 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use its commercially reasonable efforts to cause such registration statement to become effective and, upon the request of the Holders of a majority of the Registrable Securities registered thereunder, keep such registration statement effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the registration statement has been completed; provided, however, that (i) such one hundred twenty (120) day period shall be extended for a period of time equal to the period the Holder refrains, at the request of an underwriter of Common Stock (or other securities) of the Company, from selling any securities included in such registration, and (ii) in the case of any registration of Registrable Securities on Form S-3 that are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, such one hundred twenty (120) day period shall be extended for up to one hundred eighty (180) days, if necessary, to keep the registration statement effective until all such Registrable Securities are sold;

(b) prepare and file with the SEC such amendments and supplements to such registration statement, and the prospectus used in connection with such registration statement, as may be necessary to comply with the Securities Act in order to enable the disposition of all securities covered by such registration statement;

(c) furnish to the selling Holders such numbers of copies of a prospectus, including a preliminary prospectus, as required by the Securities Act, and such other documents as the Holders may reasonably request in order to facilitate their disposition of their Registrable Securities;

(d) use its commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or blue-sky laws of such jurisdictions as shall be reasonably requested by the selling Holders; provided that the Company shall not be required to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the underwriter(s) of such offering;

(f) use its commercially reasonable efforts to cause all such Registrable Securities covered by such registration statement to be listed on a national securities exchange or trading system and each securities exchange and trading system (if any) on which similar securities issued by the Company are then listed;

(g) provide a transfer agent and registrar for all Registrable Securities registered pursuant to this Agreement and provide a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(h) promptly make available for inspection by the selling Holders, any managing underwriter(s) participating in any disposition pursuant to such registration statement, and any attorney or accountant or other agent retained by any such underwriter or selected by the selling Holders, all financial and other records, pertinent corporate documents, and properties of the Company, and cause the Company's officers, directors, employees, and independent accountants to supply all information reasonably requested by any such seller, underwriter, attorney, accountant, or agent, in each case, as necessary or advisable to verify the accuracy of the information in such registration statement and to conduct appropriate due diligence in connection therewith;

(i) notify each selling Holder, promptly after the Company receives notice thereof, of the time when such registration statement has been declared effective or a supplement to any prospectus forming a part of such registration statement has been filed; and

(j) after such registration statement becomes effective, notify each selling Holder of any request by the SEC that the Company amend or supplement such registration statement or prospectus.

In addition, the Company shall ensure that, at all times after any registration statement covering a public offering of securities of the Company under the Securities Act shall have become effective, its insider trading policy shall provide that the Company's directors may implement a trading program under Rule 10b5-1 of the Exchange Act.

2.5 Furnish Information. It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 2 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as is reasonably required to effect the registration of such Holder's Registrable Securities.

2.6 Expenses of Registration. All expenses (other than Selling Expenses) incurred in connection with registrations, filings, or qualifications pursuant to Section 2, including all registration, filing, and qualification fees; printers' and accounting fees; fees and disbursements of counsel for the Company; and the reasonable fees and disbursements, not to exceed $50,000, of one counsel for the selling Holders ("**Selling Holder Counsel**"), shall be borne and paid by the Company; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Subsection 2.1 if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities to be registered (in which case all selling Holders shall bear such expenses *pro rata* based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Holders of a majority of the Registrable Securities agree to forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b), as the case may be; provided further that if, at the time of such withdrawal, the Holders shall have learned of a material adverse change in the condition, business, or prospects of the Company from that known to the Holders at the time of their request and have withdrawn the request with reasonable promptness after learning of such information then the Holders shall not be required to pay any of such expenses and shall not forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b). All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 shall be borne and paid by the Holders *pro rata* on the basis of the number of Registrable Securities registered on their behalf.

2.7 Delay of Registration. No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any registration pursuant to this Agreement as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 2.

2.8 Indemnification. If any Registrable Securities are included in a registration statement under this Section 2:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each selling Holder, and the partners, members, officers, directors, and stockholders of each such Holder; legal counsel and accountants for each such Holder; any underwriter (as defined in the Securities Act) for each such Holder; and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Damages, and the Company will pay to each such Holder, underwriter, controlling Person, or other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(a) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Company,

which consent shall not be unreasonably withheld, nor shall the Company be liable for any Damages to the extent that they arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of any such Holder, underwriter, controlling Person, or other aforementioned Person expressly for use in connection with such registration.

(b) To the extent permitted by law, each selling Holder, severally and not jointly, will indemnify and hold harmless the Company, and each of its directors, each of its officers who has signed the registration statement, each Person (if any), who controls the Company within the meaning of the Securities Act, legal counsel and accountants for the Company, any underwriter (as defined in the Securities Act), any other Holder selling securities in such registration statement, and any controlling Person of any such underwriter or other Holder, against any Damages, in each case only to the extent that such Damages arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of such selling Holder expressly for use in connection with such registration; and each such selling Holder will pay to the Company and each other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(b) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld; and provided further that in no event shall the aggregate amounts payable by any Holder by way of indemnity or contribution under Subsections 2.8(b) and 2.8(d) exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of fraud or willful misconduct by such Holder.

(c) Promptly after receipt by an indemnified party under this Subsection 2.8 of notice of the commencement of any action (including any governmental action) for which a party may be entitled to indemnification hereunder, such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Subsection 2.8, give the indemnifying party notice of the commencement thereof. The indemnifying party shall have the right to participate in such action and, to the extent the indemnifying party so desires, participate jointly with any other indemnifying party to which notice has been given, and to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party (together with all other indemnified parties that may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such action. The failure to give notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Section 2.8.

(d) To provide for just and equitable contribution to joint liability under the Securities Act in any case in which either: (i) any party otherwise entitled to indemnification hereunder makes a claim for indemnification pursuant to this Subsection 2.8 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case, notwithstanding the fact that this Subsection 2.8 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any party hereto for which indemnification is provided under this Subsection 2.8, then, and in each such case, such parties will contribute to the aggregate losses, claims, damages, liabilities, or expenses to which they may be subject (after contribution from others) in such proportion as is appropriate to reflect the relative fault of each of the indemnifying party and the indemnified party in connection with the statements, omissions, or other actions that resulted in such loss, claim, damage, liability, or expense, as well as to reflect any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or allegedly untrue statement of a material fact, or the omission or alleged omission of a material fact, relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission; provided, however, that, in any such case (x) no Holder will be required to contribute any amount in excess of the public offering price of all such Registrable Securities offered and sold by such Holder pursuant to such registration statement, and (y) no Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation; and provided further that in no event shall a Holder's liability pursuant to this Subsection 2.8(d), when combined with the amounts paid or payable by such Holder pursuant to Subsection 2.8(b), exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of willful misconduct or fraud by such Holder.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

(f) Unless otherwise superseded by an underwriting agreement entered into in connection with the underwritten public offering, the obligations of the Company and Holders under this Subsection 2.8 shall survive the completion of any offering of Registrable Securities in a registration under this Section 2, and otherwise shall survive the termination of this Agreement.

2.9 Reports Under Exchange Act. With a view to making available to the Holders the benefits of SEC Rule 144 and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company shall:

(a) make and keep available adequate current public information, as those terms are understood and defined in SEC Rule 144, at all times after the effective date of the registration statement filed by the Company for the IPO;

(b) use commercially reasonable efforts to file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act (at any time after the Company has become subject to such reporting requirements); and

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) to the extent accurate, a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144 (at any time after ninety (90) days after the effective date of the registration statement filed by the Company for the IPO), the Securities Act, and the Exchange Act (at any time after the Company has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after the Company so qualifies); (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company; and (iii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC that permits the selling of any such securities without registration (at any time after the Company has become subject to the reporting requirements under the Exchange Act) or pursuant to Form S-3 (at any time after the Company so qualifies to use such form).

2.10 Limitations on Subsequent Registration Rights. From and after the date of this Agreement, the Company shall not, without the prior written consent of the Holders of a majority of the Registrable Securities then outstanding, which must include the approval of the Significant Investor Majority enter into any agreement with any holder or prospective holder of any securities of the Company that (i) would provide to such holder the right to include securities in any registration on other than either a *pro rata* basis with respect to the Registrable Securities or on a subordinate basis after all Holders have had the opportunity to include in the registration and offering all shares of Registrable Securities that they wish to so include; or (ii) allow such holder or prospective holder to initiate a demand for registration of any securities held by such holder or prospective holder; provided that this limitation shall not apply to any additional Investor who becomes a party to this Agreement in accordance with Subsection 6.9.

2.11 "Market Stand-off" Agreement. Each Holder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the registration by the Company of shares of its Common Stock or any other equity securities under the Securities Act for its IPO and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days), (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock held immediately before the effective date of the registration statement for such offering or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise. The foregoing provisions of this Subsection 2.11 shall (A) apply only to the IPO, (B) not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, (C) not apply to the transfer of any shares to any trust for the direct or indirect benefit of the Holder or the immediate family of the Holder, provided that the trustee of the trust agrees to be bound in writing by the restrictions set forth herein, and provided further

that any such transfer shall not involve a disposition for value, and (D) be applicable to the Holders only if all officers, directors and stockholders, individually and together with their Affiliates, owning more than one percent (1.0%) of the Company's outstanding Common Stock (after giving effect to conversion into Common Stock of all outstanding Preferred Stock) enter into similar agreements. The underwriters in connection with such registration are intended third-party beneficiaries of this Subsection 2.11 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Subsection 2.11 or that are necessary to give further effect thereto. To the extent that any person who is subject to market stand-off obligations is released early by the managing underwriter from such market stand-off obligations, then each Holder shall also receive a *pro rata* release, based on the number of shares subject to such agreements, from their respective market stand-off obligations. The foregoing provisions of this Subsection 2.11 shall not apply to transactions relating to securities acquired in the IPO or open market transactions from and after the IPO.

2.12 Restrictions on Transfer.

(a) The Preferred Stock and the Registrable Securities shall not be sold, pledged, or otherwise transferred, and the Company shall not recognize and shall issue stop-transfer instructions to its transfer agent with respect to any such sale, pledge, or transfer, except upon the conditions specified in this Agreement, which conditions are intended to ensure compliance with the provisions of the Securities Act. A transferring Holder will cause any proposed purchaser, pledgee, or transferee of the Preferred Stock and the Registrable Securities held by such Holder to agree to take and hold such securities subject to the provisions and upon the conditions specified in this Agreement.

(b) Each certificate, instrument, or book entry representing (i) the Preferred Stock, (ii) the Registrable Securities, and (iii) any other securities issued in respect of the securities referenced in clauses (i) and (ii), upon any stock split, stock dividend, recapitalization, merger, consolidation, or similar event, shall (unless otherwise permitted by the provisions of Subsection 2.12(c)) be notated with a legend substantially in the following form:

THE SECURITIES REPRESENTED HEREBY HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933. SUCH SHARES MAY NOT BE SOLD, PLEDGED, OR TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR A VALID EXEMPTION FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SAID ACT.

THE SECURITIES REPRESENTED HEREBY MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

The Holders consent to the Company making a notation in its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer set forth in this Subsection 2.12.

(c) The holder of such Restricted Securities, by acceptance of ownership thereof, agrees to comply in all respects with the provisions of this Section 2. Before any proposed sale, pledge, or transfer of any Restricted Securities, unless there is in effect a registration statement under the Securities Act covering the proposed transaction, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer. Each such notice shall describe the manner and circumstances of the proposed sale, pledge, or transfer in sufficient detail and, if reasonably requested by the Company, shall be accompanied at such Holder's expense by either (i) a written opinion of legal counsel who shall, and whose legal opinion shall, be reasonably satisfactory to the Company, addressed to the Company, to the effect that the proposed transaction may be effected without registration under the Securities Act; (ii) a "no action" letter from the SEC to the effect that the proposed sale, pledge, or transfer of such Restricted Securities without registration will not result in a recommendation by the staff of the SEC that action be taken with respect thereto; or (iii) any other evidence reasonably satisfactory to counsel to the Company to the effect that the proposed sale, pledge, or transfer of the Restricted Securities may be effected without registration under the Securities Act, whereupon the Holder of such Restricted Securities shall be entitled to sell, pledge, or transfer such Restricted Securities in accordance with the terms of the notice given by the Holder to the Company. The Company will not require such a legal opinion or "no action" letter (x) in any transaction in compliance with SEC Rule 144; (y) in any transaction in which such Holder distributes Restricted Securities to an Affiliate of such Holder for no consideration; or (z) in any internal transaction in which such Holder transfers Restricted Securities to an Affiliate of such Holder that is an entity and that is ultimately controlled by the same parent company as the Holder (or is the ultimate parent company of the Holder); provided that in the case of clauses (y) and (z), each transferee agrees in writing to be subject to the terms of this Subsection 2.12. Notwithstanding the foregoing, the Company shall be obligated to reissue promptly unlegended certificates or book entries at the request of any Holder thereof if the Company has completed its IPO and the Holder shall have obtained an opinion of counsel (which counsel may be counsel to the Company) to the effect that the securities proposed to be disposed of may lawfully be so disposed of without registration, qualification and legend, provided that the second legend listed above shall be removed only at such time as the Holder of such certificate is no longer subject to any restrictions hereunder. Each certificate, instrument, or book entry representing the Restricted Securities transferred as above provided shall be notated with, except if such transfer is made pursuant to SEC Rule 144, the appropriate restrictive legend set forth in Subsection 2.12(b), except that such certificate instrument, or book entry shall not be notated with such restrictive legend if, in the opinion of counsel for such Holder and the Company, such legend is not required in order to establish compliance with any provisions of the Securities Act.

2.13 Termination of Registration Rights. The right of any Holder to request registration or inclusion of Registrable Securities in any registration pursuant to Subsections 2.1 or 2.2 shall terminate upon the earliest to occur of:

(a) the closing of a Deemed Liquidation Event, as such term is defined in the Restated Certificate;

(b) such time as Rule 144 or another similar exemption under the Securities Act is available for the sale of all of such Holder's shares without limitation during a three-month period without registration; and

(c) the fifth anniversary of the IPO.

3. Information and Observation Rights.

3.1 Delivery of Financial Statements. The Company shall deliver to each Major Investor, provided that the Board of Directors has not reasonably determined that such Major Investor is a Competitor:

(a) as soon as practicable, but in any event within thirty (30) days of the end of each month, an unaudited income statement and statement of cash flows for such month, and an unaudited balance sheet and statement of stockholders' equity as of the end of such month, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end audit adjustments and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(b) as soon as practicable, but in any event within one hundred twenty (120) days after the end of each fiscal year of the Company (i) a balance sheet as of the end of such year, (ii) statements of income and of cash flows for such year, and (iii) a statement of stockholders' equity as of the end of such year, all such financial statements audited and certified by independent public accountants of regionally recognized standing selected by the Company;

(c) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, unaudited statements of income and cash flows for such fiscal quarter, and an unaudited balance sheet as of the end of such fiscal quarter, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end audit adjustments; and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(d) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, a statement showing the number of shares of each class and series of capital stock and securities convertible into or exercisable for shares of capital stock outstanding at the end of the period, the Common Stock issuable upon conversion or exercise of any outstanding securities convertible or exercisable for Common Stock and the exchange ratio or exercise price applicable thereto, and the number of shares of issued stock options and stock options not yet issued but reserved for issuance, if any, all in sufficient detail as to permit the Major Investors to calculate their respective percentage equity ownership in the Company, and certified by the chief financial officer or chief executive officer of the Company as being true, complete, and correct;

(e) as soon as practicable, but in any event thirty (30) days before the end of each fiscal year, a comprehensive budget and business plan for the next fiscal year (collectively, the "**Budget**"), approved by the Board of Directors and prepared on a monthly basis, including balance sheets, income statements, and statements of cash flow for such months and, promptly after prepared, any other budgets or revised budgets prepared by the Company;

(f) with respect to the financial statements called for in Subsection 3.1(a) and Subsection 3.1(c), an instrument executed by the chief financial officer and chief executive officer of the Company certifying that such financial statements were prepared in accordance with GAAP consistently applied with prior practice for earlier periods (except as otherwise set forth in Subsection 3.1(a) and Subsection 3.1(c)) and fairly present the financial condition of the Company and its results of operation for the periods specified therein; and

(g) such other information relating to the financial condition, business, prospects, or corporate affairs of the Company as any Major Investor may from time to time reasonably request; provided, however, that the Company shall not be obligated under this Section 3.1 to provide information (i) that the Company reasonably determines in good faith to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in a form acceptable to the Company, it being agreed that Subsection 3.5 hereof shall satisfy such requirement); or (ii) the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

If, for any period, the Company has any subsidiary whose accounts are consolidated with those of the Company, then in respect of such period the financial statements delivered pursuant to the foregoing sections shall be the consolidated and consolidating financial statements of the Company and all such consolidated subsidiaries.

Notwithstanding anything else in this Subsection 3.1 to the contrary, the Company may cease providing the information set forth in this Subsection 3.1 during the period starting with the date sixty (60) days before the Company's good-faith estimate of the date of filing of a registration statement if it reasonably concludes it must do so to comply with the SEC rules applicable to such registration statement and related offering; provided that the Company's covenants under this Subsection 3.1 shall be reinstated at such time as the Company is no longer actively employing its commercially reasonable efforts to cause such registration statement to become effective.

3.2 Inspection. The Company shall permit each Major Investor (provided that the Board of Directors has not reasonably determined that such Major Investor is a Competitor), at such Major Investor's expense, to visit and inspect the Company's properties; examine its books of account and records; and discuss the Company's affairs, finances, and accounts with its officers, during normal business hours of the Company as may be reasonably requested by the Major Investor; provided, however, that the Company shall not be obligated pursuant to this Subsection 3.2 to provide access to any information that it reasonably and in good faith considers to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in form acceptable to the Company, it being agreed that Subsection 3.5 hereof shall satisfy such requirement) or the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

3.3 Observer Rights; Expense Reimbursement. As long as Surveyor owns not less than fifty percent (50%) of the shares of the Preferred Stock it owns as of the date hereof (or an equivalent amount of Common Stock issued upon conversion thereof, as adjusted for stock splits, stock dividends, recapitalization, reorganizations and the like), the Company shall invite a representative of Surveyor to attend all meetings of the Board of Directors in a nonvoting observer capacity. The Company, in this respect, shall give such representatives copies of all notices, minutes, consents, and other materials that it provides to its directors at the same time and in the same manner as its directors; provided, however, that such representative shall agree to hold in confidence all information so provided; and provided further, that the Company reserves the right to withhold any information and to exclude such representatives from any meeting or portion thereof if access to such information or attendance at such meeting would be reasonably likely to adversely affect the attorney-client privilege between the Company and its counsel or result in disclosure of trade secrets or a conflict of interest. Upon request, the Company shall promptly reimburse in full, each nonvoting observer of the Company for his or her reasonable, customary and documented out-of-pocket expenses incurred in the course of business conducted on behalf of the Company (including without limitation attendance of meetings of the Board) in an amount not to exceed $5,000 per year.

3.4 Termination of Information and Observation Rights. The covenants set forth in Subsections 3.1, 3.2 and 3.3 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (iii) upon a Deemed Liquidation Event, as such term is defined in the Restated Certificate, whichever event occurs first.

3.5 Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement (including notice of the Company's intention to file a registration statement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Subsection 3.5 by such Investor), (b) is or has been independently developed or conceived by the Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to the Investor by a third party without a breach of any obligation of confidentiality such third party may have to the Company; provided, however, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its investment in the Company; (ii) to any prospective purchaser of any Registrable Securities from such Investor, if such prospective purchaser agrees to be bound by the provisions of this Subsection 3.5 and is not a competitor of the Company; (iii) to any existing or prospective Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor in the ordinary course of business, provided that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; (iv) to the extent required in connection with any routine or periodic examination or similar process by any regulatory or self-regulatory body or authority not specifically directed at the Company or the confidential information obtained from the Company pursuant to the terms of the Agreement, including, without limitation, quarterly or annual reports delivered pursuant to Subsection 3.1; or (v) as may otherwise be required by law, provided that, in the case of this clause (v), the Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure.

4. Rights to Future Stock Issuances.

4.1 Right of First Offer. Subject to the terms and conditions of this Subsection 4.1 and applicable securities laws, if the Company proposes to offer or sell any New Securities, the Company shall first offer such New Securities to each Major Investor. A Major Investor shall be entitled to apportion the right of first offer hereby granted to it, in such proportions as it deems appropriate, among (i) itself, (ii) its Affiliates and (iii) its beneficial interest holders, such as limited partners, members or any other Person having "beneficial ownership," as such term is defined in Rule 13d-3 promulgated under the Exchange Act, of such Major Investor ("**Investor Beneficial Owners**"); provided that each such Affiliate or Investor Beneficial Owner (x) is not a Competitor, unless such party's purchase of New Securities is otherwise consented to by the Board of Directors, and (y) agrees to enter into this Agreement and each of the Voting Agreement and Right of First Refusal and Co-Sale Agreement of even date herewith among the Company, the Investors and the other parties named therein, as an "Investor" under each such agreement, or any amended and/or restated version of such agreements, as the case may be (provided that any Competitor shall not be entitled to any rights as a Major Investor under Sections 3.1, 3.2 and 4.1 hereof).

(a) The Company shall give notice (the "**Offer Notice**") to each Major Investor, stating (i) its bona fide intention to offer such New Securities, (ii) the number of such New Securities to be offered, and (iii) the price and terms, if any, upon which it proposes to offer such New Securities.

(b) By notification to the Company within twenty (20) days after the Offer Notice is given, each Major Investor may elect to purchase or otherwise acquire, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the Common Stock then held by such Major Investor (including all shares of Common Stock then issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held by such Major Investor) bears to the total Common Stock of the Company then outstanding (assuming full conversion and/or exercise, as applicable, of all Preferred Stock and other Derivative Securities). At the expiration of such twenty (20) day period, the Company shall promptly notify each Major Investor that elects to purchase or acquire all the shares available to it (each, a "**Fully Exercising Investor**") of any other Major Investor's failure to do likewise. During the ten (10) day period commencing after the Company has given such notice, each Fully Exercising Investor may, by giving notice to the Company, elect to purchase or acquire, in addition to the number of shares specified above, up to that portion of the New Securities for which Major Investors were entitled to subscribe but that were not subscribed for by the Major Investors which is equal to the proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of Preferred Stock and any other Derivative Securities then held, by such Fully Exercising Investor bears to the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held, by all Fully Exercising Investors who wish to purchase such unsubscribed shares. The closing of any sale pursuant to this Subsection 4.1(b) shall occur within the later of one hundred and twenty (120) days of the date that the Offer Notice is given and the date of initial sale of New Securities pursuant to Subsection 4.1(c).

(c) If all New Securities referred to in the Offer Notice are not elected to be purchased or acquired as provided in Subsection 4.1(b), the Company may, during the ninety (90) day period following the expiration of the periods provided in Subsection 4.1(b), offer and sell the remaining unsubscribed portion of such New Securities to any Person or Persons at a price not less than, and upon terms no more favorable to the offeree than, those specified in the Offer Notice. If the Company does not enter into an agreement for the sale of the New Securities within such period, or if such agreement is not consummated within thirty (30) days of the execution thereof, the right provided hereunder shall be deemed to be revived and such New Securities shall not be offered unless first reoffered to the Major Investors in accordance with this Subsection 4.1.

(d) The right of first offer in this Subsection 4.1 shall not be applicable to (i) Exempted Securities (as defined in the Restated Certificate); (ii) shares of Common Stock issued in the IPO; and (iii) the issuance of shares of Series B Preferred Stock pursuant to the Purchase Agreement.

4.2 Termination. The covenants set forth in Subsection 4.1 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (iii) upon a Deemed Liquidation Event, as such term is defined in the Restated Certificate, whichever event occurs first.

5. Additional Covenants.

5.1 Board Matters.

(a) The Board shall convene for meetings at least quarterly, unless otherwise approved by the Board.

(b) Upon request, the Company shall promptly reimburse in full, each non-employee director of the Company for his or her reasonable, customary and documented out-of-pocket expenses incurred in the course of business conducted on behalf of the Company (including without limitation attendance of meetings of the Board). Each non-employee director shall be entitled in such person's discretion to be a member of any committee of the Board.

5.2 Director's & Officer's Liability. The Company has as of the date hereof or shall within ninety (90) days of the date hereof use its commercially reasonable efforts to obtain from financially sound and reputable insurers directors and officers liability insurance in an amount and on terms and conditions satisfactory to the Board, including at least three (3) of the Preferred Directors, which shall include one (1) Series A Director and one (1) Series B Director (each as defined in the Restated Certificate) and will use its commercially reasonable efforts to cause such insurance policy to be maintained until such time as the Board, including at least three (3) Preferred Directors, which shall include one (1) Series A Director and one (1) Series B Director, determines that such insurance should be discontinued.

5.3 Indemnification; Successor Indemnification. The Company shall use its best efforts to provide that its Restated Certificate and bylaws provide for indemnification of officers and directors of the Company to the maximum extent permitted by law. The Company shall enter into a customary indemnification agreement in form satisfactory to the Investors with each non-employee member of the Board of Directors. If the Company or any of its successors or assignees consolidates with or merges into any other Person and is not the continuing or surviving corporation or entity of such consolidation or merger, then to the extent necessary, proper provision shall be made so that the successors and assignees of the Company assume the obligations of the Company with respect to indemnification of members of the Board of Directors as in effect immediately before such transaction, whether such obligations are contained in the Company's Bylaws, its Certificate of Incorporation, or elsewhere, as the case may be.

5.4 Publicity. The Company shall not use the name of Novo, or any of its Affiliates in any trade publication, marketing materials or otherwise to the general public, in each case without the prior written consent of Novo, which consent may be withheld in its sole discretion; provided that (i) the parties anticipate that there will be a press release announcing the closing of the transaction contemplated in the Purchase Agreement and (ii) following the public announcement contemplated in clause (i), the Company may confirm that Novo is an investor in the Company (but not the amount or terms thereof) in a form of disclosure that has been previously approved by Novo.

5.5 Employee Agreements. The Company will cause each person now or hereafter employed by it or by any subsidiary (or engaged by the Company or any subsidiary as a consultant/independent contractor) with access to confidential information and/or trade secrets to enter into a nondisclosure and proprietary rights assignment agreement. In addition, the Company shall not amend, modify, terminate, waive, or otherwise alter, in whole or in part, any of the above-referenced agreements or any restricted stock agreement between the Company and any employee, without the consent of the Board of Directors.

5.6 Employee Stock. Unless otherwise approved by the Board of Directors, all future employees and consultants of the Company who purchase, receive options to purchase, or receive awards of shares of the Company's capital stock after the date hereof shall be required to execute restricted stock or option agreements, as applicable, providing for (i) vesting of shares over a four (4) year period, with the first twenty-five percent (25%) of such shares vesting following twelve (12) months of continued employment or service, and the remaining shares vesting in equal monthly installments over the following thirty-six (36) months, and (ii) a market stand-off provision substantially similar to that in Subsection 2.11. In addition, unless otherwise approved by the Board of Directors, the Company shall retain a "right of first refusal" on transfers of Common Stock held by current or former service providers to the Company until the Company's IPO and shall have the right to repurchase unvested shares at cost upon termination of employment of a holder of restricted stock.

5.7 Termination of Covenants. The covenants set forth in this Section 5, except for Subsection 5.3 and Subsection 5.9, shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (iii) upon a Deemed Liquidation Event, as such term is defined in the Restated Certificate, whichever event occurs first.

5.8 FCPA. The Company represents that it shall not (and shall not permit any of its subsidiaries or affiliates or any of its or their respective directors, officers, managers, employees, independent contractors, representatives or agents to) promise, authorize or make any payment to, or otherwise contribute any item of value to, directly or indirectly, to any third party, including any Non-U.S. Official (as such term is defined in the U.S. Foreign Corrupt Practices Act of 1977, as amended (the "**FCPA**")), in each case, in violation of the FCPA, the U.K. Bribery Act, or any other applicable anti-bribery or anti-corruption law. The Company further represents that it shall (and shall cause each of its subsidiaries and affiliates to) cease all of its or their respective activities, as well as remediate any actions taken by the Company, its subsidiaries or affiliates, or any of their respective directors, officers, managers, employees, independent contractors, representatives or agents in violation of the FCPA, the U.K. Bribery Act, or any other applicable anti-bribery or anti-corruption law. Upon request, the Company agrees to provide responsive information and/or certifications concerning its compliance with applicable anti-corruption laws. The Company shall promptly notify each Investor if the Company becomes aware of any Enforcement Action (as defined in the Purchase Agreement). The Company shall, and shall cause any direct or indirect subsidiary or entity controlled by it, whether now in existence or formed in the future, to comply with the FCPA. The Company shall use its best efforts to cause any direct or indirect subsidiary, whether now in existence or formed in the future, to comply in all material respects with all applicable laws.

5.9 Right to Conduct Activities. The Company hereby agrees and acknowledges that each of the Funds is a professional investment fund, and as such invest in numerous portfolio companies, some of which may be deemed competitive with the Company's business (as currently conducted or as currently proposed to be conducted), and that the Funds each have affiliated entities that may be deemed competitive with the Company's business (as currently conducted or as currently proposed to be conducted). The Company hereby agrees that none of the Funds shall be liable to the Company for any claim arising out of, or based upon, (i) the investment by such Fund in any entity competitive with the Company, (ii) actions taken by any partner, officer or other representative of such Fund to assist any such competitive company, whether or not such action was taken as a member of the board of directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company or (iii) the activities of entities affiliated with such Fund; provided, however, that the foregoing shall not relieve (x) any of the Investors from liability associated with the unauthorized disclosure of the Company's confidential information obtained pursuant to this Agreement, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company.

5.10 Critical Technology Matters.

(a) To the extent (i) any pre-existing products or services provided by the Company are re-categorized by the U.S. government as a critical technology within the meaning of the Defense Production Act of 1950, as amended, including all implementing regulations thereof (the "**DPA**"), or would reasonably be considered to constitute the design, fabrication, development, testing, production or manufacture of a critical technology after a re-

categorization of selected technologies by the U.S. government, or (ii) after execution of the Purchase Agreement, the Company engages in any activity that could reasonably be considered to constitute the design, fabrication, development, testing, production or manufacture of a critical technology within the meaning of the DPA, the Company shall promptly notify the Investors of such change in the categorization of its products or services.

(b) Subject to Section 4.14 of the Purchase Agreement, if and only if (i) the Committee on Foreign Investment in the United States ("**CFIUS**") requests or requires that any Investor or the Company file a notice or declaration with CFIUS pursuant to the DPA with respect to the Investor's investment in the Company (the "**Covered Transactions**") or (ii) any Investor or the Company reasonably determines (based on advice of counsel) that a filing with CFIUS with respect to the Covered Transactions is advisable or required by applicable law, then in either case, (i) or (ii): (x) the Company and each Investor shall, and shall cause its affiliates to, cooperate with the other parties hereto and shall promptly file a CFIUS filing in the requested, required or advisable form in accordance with the DPA; and (y) the Company and each Investor shall, and shall cause its affiliates to, use reasonable best efforts to obtain, as applicable, the CFIUS Satisfied Condition (as defined in the Purchase Agreement), provided that agreement to any mitigation terms shall be at the reasonable discretion of the affected Investor.

5.11 2016 Equity Incentive Plan. The Company hereby agrees that it shall not issue greater than 6,112,000 shares of Common Stock (or options to purchase shares of Common Stock) pursuant to its 2016 Equity Incentive Plan until after the consummation of the Secondary Closing (as defined in the Purchase Agreement). Notwithstanding the forgoing, in the event an Investor chooses to purchase an additional number of shares of Series B Preferred Stock after the date hereof and prior to the consummation of the Secondary Closing, that number of shares of Common Stock (or options to purchase shares of Common Stock) equal to the product of (i) 5,883,000 and (ii) the ratio of the additional shares purchased by such Investor to the total number of shares available for purchase pursuant to the Secondary Closing shall be available for issuance pursuant to the Company's 2016 Equity Incentive Plan.

5.12 ESG Reporting. The Company will furnish to HealthCap, and any other requesting Major Investor, such other information relating to the corporate affairs of the Company as HealthCap, or such other requesting Major Investor, may from time to time reasonably request, including without limitation, information relating to measures of environmental, social and corporate governance ("ESG") factors and its ESG compliance as agreed upon by the Company and HealthCap or such other requesting Major Investor.. The Company agrees to report such ESG compliance by completing HealthCap's standard form of ESG questionnaire on an annual basis.

6. Miscellaneous.

6.1 Successors and Assigns. The rights under this Agreement may be assigned (but only with all related obligations) by a Holder to a transferee of Registrable Securities that (i) is an Affiliate of a Holder; (ii) is a Holder's Immediate Family Member or trust for the benefit of an individual Holder or one or more of such Holder's Immediate Family Members; or (iii) after such transfer, holds at least 500,000 shares of Registrable Securities (subject to appropriate

adjustment for stock splits, stock dividends, combinations, and other recapitalizations); provided, however, that (x) the Company is, within a reasonable time after such transfer, furnished with written notice of the name and address of such transferee and the Registrable Securities with respect to which such rights are being transferred; and (y) such transferee agrees in a written instrument delivered to the Company to be bound by and subject to the terms and conditions of this Agreement, including the provisions of Subsection 2.11. For the purposes of determining the number of shares of Registrable Securities held by a transferee, the holdings of a transferee (1) that is an Affiliate or stockholder of a Holder; (2) who is a Holder's Immediate Family Member; or (3) that is a trust for the benefit of an individual Holder or such Holder's Immediate Family Member shall be aggregated together and with those of the transferring Holder; provided further that all transferees who would not qualify individually for assignment of rights shall have a single attorney-in-fact for the purpose of exercising any rights, receiving notices, or taking any action under this Agreement. The terms and conditions of this Agreement inure to the benefit of and are binding upon the respective successors and permitted assignees of the parties. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assignees any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided herein.

6.2 Governing Law. This Agreement shall be governed by the internal law of the State of California, without reference to its principles of conflicts of laws.

6.3 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, *e.g.*, www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes**.**

6.4 Titles and Subtitles. The titles and subtitles used in this Agreement are for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or (i) personal delivery to the party to be notified; (ii) when sent, if sent by electronic mail during the recipient's normal business hours, and if not sent during normal business hours, then on the recipient's next business day; (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one (1) business day after the business day of deposit with a nationally recognized overnight courier, freight prepaid, specifying next-day delivery, with written verification of receipt. All communications shall be sent to the respective parties at their addresses as set forth on Schedule A hereto, or to the principal office of the Company and to the attention of the Chief Executive Officer, in the case of the Company, or to such email address or address as subsequently modified by written notice given in accordance with this Subsection 6.5. If notice is given to the Company, a copy shall also be sent to (which shall not constitute notice): Cooley LLP, 101 California Street, 5th Floor, San Francisco, California 94111, Attn: Jason Kent, and if notice is given to the Purchasers, a copy shall also be to (which copy shall not constitute notice): Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP, One Marina Park Drive, Suite 900, Boston, Massachusetts 02210, Attn: Jeffrey M. Engerman.

6.6 Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance, and either retroactively or prospectively) only with the written consent of the Company and the holders of a majority of the Registrable Securities then outstanding, which must include the approval of the Significant Investor Majority; provided that the Company may in its sole discretion waive compliance with Subsection 2.12(c) (and the Company's failure to object promptly in writing after notification of a proposed assignment allegedly in violation of Subsection 2.12(c) shall be deemed to be a waiver); and provided further that any provision hereof may be waived by any waiving party on such party's own behalf, without the consent of any other party; provided that Subsection 3.3 and this proviso in this Section 6.6 may not be amended, terminated or waived without the written consent of Surveyor; and provided further that Subsection 5.4 may not be amended, terminated or waived without the written consent of Novo; and provided further that the clause "(other than such Investor who does not participate in the Secondary Closing as a result of a CFIUS Exception (as defined in the Purchase Agreement))" in the definition of Major Investor in Section 1 and Subsection 5.10 may not be amended, terminated or waived without the written consent of Novo, Surveyor and each other Non-US Person (as defined in the Purchase Agreement); and provided further that any amendment, termination or waiver of Subsection 2.8(b), 2.8(d), 5.10, 6.14, this proviso or the definitions of "Funds" and "Competitor", in each case, as they relate to such Funds, shall require the written consent of each of the Funds. Notwithstanding the foregoing, this Agreement may not be amended or terminated and the observance of any term hereof may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, termination, or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Investors may nonetheless, by agreement with the Company, purchase securities in such transaction; provided, however, that if, after giving effect to such waiver of Section 4 with respect to a particular transaction, a Major Investor purchases securities in such transaction or issuance (such Major Investor, a "**Participating Investor**"), such waiver of the provisions of Section 4 shall be deemed to apply to each other Major Investor whose rights were waived or amended only if such other Major Investor has been provided the opportunity to purchase a proportional number of the New Securities being offered by the Company in such transaction based on the pro rata purchase right of such other Major Investor set forth in Section 4, assuming a transaction size determined based upon the amount purchased by the Participating Investor that invested the largest percentage in such transaction, it being agreed that such opportunity may be provided subsequent to the initial closing in which such Participating Investor(s) purchase securities). The Company shall give prompt notice of any amendment or termination hereof or waiver hereunder to any party hereto that did not consent in writing to such amendment, termination, or waiver. Any amendment, termination, or waiver effected in accordance with this Subsection 6.6 shall be binding on all parties hereto, regardless of whether any such party has consented thereto. No waivers of or exceptions to any term, condition, or provision of this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such term, condition, or provision.

6.7 Severability. In case any one or more of the provisions contained in this Agreement is for any reason held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and such invalid, illegal, or unenforceable provision shall be reformed and construed so that it will be valid, legal, and enforceable to the maximum extent permitted by law.

6.8 Aggregation of Stock. All shares of Registrable Securities held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement and such Affiliated persons may apportion such rights as among themselves in any manner they deem appropriate.

6.9 Additional Investors. Notwithstanding anything to the contrary contained herein, if the Company issues additional shares of the Company's Series B Preferred Stock after the date hereof, whether pursuant to the Purchase Agreement or otherwise, any purchaser of such shares of Series B Preferred Stock may become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement, and thereafter shall be deemed an "Investor" for all purposes hereunder. No action or consent by the Investors shall be required for such joinder to this Agreement by such additional Investor, so long as such additional Investor has agreed in writing to be bound by all of the obligations as an "Investor" hereunder.

6.10 Entire Agreement. This Agreement (including any Schedules and Exhibits hereto) constitutes the full and entire understanding and agreement among the parties with respect to the subject matter hereof, and any other written or oral agreement relating to the subject matter hereof existing between the parties is expressly canceled.

6.11 Dispute Resolution. The parties (a) hereby irrevocably and unconditionally submit to the jurisdiction of the state courts of California and to the jurisdiction of the United States District Court for the District of Northern California for the purpose of any suit, action or other proceeding arising out of or based upon this Agreement, (b) agree not to commence any suit, action or other proceeding arising out of or based upon this Agreement except in the state courts of California or the United States District Court for the District of Northern California, and (c) hereby waive, and agree not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court.

WAIVER OF JURY TRIAL: EACH PARTY HEREBY WAIVES ITS RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS AGREEMENT, THE OTHER TRANSACTION DOCUMENTS, THE SECURITIES OR THE SUBJECT MATTER HEREOF OR THEREOF. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL-ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER OF THIS TRANSACTION, INCLUDING, WITHOUT LIMITATION, CONTRACT CLAIMS, TORT CLAIMS (INCLUDING NEGLIGENCE), BREACH OF DUTY CLAIMS, AND ALL OTHER

COMMON LAW AND STATUTORY CLAIMS. THIS SECTION HAS BEEN FULLY DISCUSSED BY EACH OF THE PARTIES HERETO AND THESE PROVISIONS WILL NOT BE SUBJECT TO ANY EXCEPTIONS. EACH PARTY HERETO HEREBY FURTHER WARRANTS AND REPRESENTS THAT SUCH PARTY HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL, AND THAT SUCH PARTY KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL.

The prevailing party shall be entitled to reasonable attorney's fees, costs, and necessary disbursements in addition to any other relief to which such party may be entitled. Each of the parties to this Agreement consents to personal jurisdiction for any equitable action sought in the U.S. District Court for the District of Northern California or any court of the State of California having subject matter jurisdiction.

6.12 Delays or Omissions. No delay or omission to exercise any right, power, or remedy accruing to any party under this Agreement, upon any breach or default of any other party under this Agreement, shall impair any such right, power, or remedy of such nonbreaching or nondefaulting party, nor shall it be construed to be a waiver of or acquiescence to any such breach or default, or to any similar breach or default thereafter occurring, nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. All remedies, whether under this Agreement or by law or otherwise afforded to any party, shall be cumulative and not alternative.

6.13 Acknowledgment. The Company acknowledges that the Investors are in the business of investing and therefore review the business plans and related proprietary information of many enterprises, including enterprises which may have products or services which compete directly or indirectly with those of the Company. Nothing in this Agreement shall preclude or in any way restrict the Investors from investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company.

6.14 Limitation of Liability; Freedom to Operate Affiliates. The total liability, in the aggregate, of each of the Funds and their respective Affiliates, officers, directors, employees and agents, for any and all claims, losses, costs or damages, including attorneys' and accountants' fees and expenses and costs of any nature whatsoever or claims or expenses resulting from or in any way related to this Agreement from any cause or causes shall be several and not joint with the other Investors and shall not exceed the total purchase price paid to the Company by such Fund for the Shares (as defined in the Purchase Agreement) under the Purchase Agreement and under that certain Series A Preferred Stock Purchase Agreement, dated February 15, 2019, by and among the Company and the parties thereto, if applicable. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law. Nothing in this Agreement or the Transaction Agreements (as defined in the Purchase Agreement) shall restrict any of the Fund's freedom to operate any of its affiliates (including any such affiliate that is a potential competitor of the Company).

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

SPRUCE BIOSCIENCES, INC.

By: /s/ Richard King
Name: Richard King
Title: Chief Executive Officer

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

Novo Holdings A/S

By: /s/ Thomas Dyrberg
Name: Thomas Dyrberg, under specific power of attorney
Title: Managing Partner, Novo Holdings A/S

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

RiverVest Venture Fund III (Ohio), L.P.

By: RiverVest Venture Partners III (Ohio), LLC
its General Partner

By: RiverVest Venture Partners III, L.P.,
its sole Member

By: RiverVest Venture Partners III, LLC,
its General Partner

By: /s/ Niall O'Donnell
Name: Niall O'Donnell
Title: Authorized Person

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

RiverVest Venture Fund III, L.P.

By: RiverVest Venture Partners III, L.P.,
its General Partner

By: RiverVest Venture Partners III, LLC,
its sole General Partner

By: /s/ Niall O'Donnell
Name: Niall O'Donnell
Title: Authorized Person

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

RiverVest Venture Fund IV, L.P.

By: RiverVest Venture Partners IV, L.P.,
its General Partner

By: RiverVest Venture Partners IV, LLC,
its sole General Partner

By: /s/ Niall O'Donnell
Name: Niall O'Donnell
Title: Authorized Person

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

Omega Fund VI, L.P.

By: Omega Fund VI GP, L.P.,
its General Partner

By: Omega Fund VI GP Manager, Ltd.,
its General Partner

By: /s/ Anne-Mari Paster
Name: Anne-Mari Paster
Title: Director

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

Abingworth Bioventures VII LP acting by Its Manager Abingworth LLP

By: /s/ John Heard
Name: John Heard
Title: Partner, General Counsel

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

Aisling Capital V, LP

By: /s/ Robert Wenzel
Name: Robert Wenzel
Title: Chief Financial Officer

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

HealthCap VIII L.P. through
HealthCap VIII GP S.A

By: /s/ Dag Richter
Name: Dag Richter
Title: Director

By: /s/ Fabrice Bernhard
Name: Fabrice Bernhard
Title: Director

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

Sands Capital Life Sciences Pulse Fund, LLC

By: /s/ Jonathan Goodman
Name: Jonathan Goodman
Title: General Counsel

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

Rock Springs Capital Master Fund LP

By: Rock Springs General Partner LLC, its General Partner

By: /s/ Graham McPhail
Name: Graham McPhail
Title: Member

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

Citadel Multi-Strategy Equities Master Fund LTD.

By: Citadel Advisors, LLC, its portfolio manager

By: /s/ Noah Goldberg
Name: Noah Goldberg
Title: Authorized Signatory

Signature Page to
Amended and Restated Investors' Rights Agreement of
Spruce Biosciences, Inc.

SCHEDULE A
Schedule of Investors

Novo Holdings A/S

RiverVest Venture Fund III, L.P.

RiverVest Venture Fund III (Ohio), L.P.

RiverVest Venture Fund IV, L.P.

Omega Fund VI, L.P.

Abingworth Bioventures VII LP

Aisling Capital V, LP

HealthCap VIII L.P.

Sands Capital Life Sciences Pulse Fund, LLC

Rock Springs Capital Master Fund

Citadel Multi-Strategy Equities Master Fund Ltd.

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN SECTIONS 5.3 AND 5.4 BELOW, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE COMPANY, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

WARRANT TO PURCHASE COMMON STOCK

Company: SPRUCE BIOSCIENCES, INC., a Delaware corporation

Number of Shares of Common Stock:	**(i) 210,156 shares, *plus* (ii) upon the date of the making of any Term Loan in the Second Tranche, an additional number of shares equal to 114,343 shares, multiplied by the quotient obtained by dividing (y) the aggregate original principal amount of all Term Loans made in the Second Tranche under the Loan Agreement by (z) $2,000,000, rounded to the nearest whole share ("Second Tranche" and "Term Loan" are defined in the Loan Agreement). Notwithstanding anything to the contrary herein, the aggregate Number of Shares granted to Holder pursuant to the terms of this Warrant shall not exceed 324,499 Shares, subject to adjustment in accordance with Section 2 below.**

Warrant Price: $0.22 per share

Issue Date:	9/23/2019
Expiration Date:	**The tenth (10th) anniversary after the Issue Date; See also Section 5.1(b).**
Credit Facility:	This Warrant to Purchase Common Stock ("Warrant") is issued in connection with that certain Loan and Security Agreement of even date herewith between Silicon Valley Bank and the Company (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**").

THIS WARRANT PROVIDES THAT, for good and valuable consideration, SILICON VALLEY BANK (together with any successor or permitted assignee or transferee of this Warrant or of any shares issued upon exercise hereof, **"Holder**") is entitled to purchase the number of fully paid and non-assessable shares (the "Shares") of the above-stated common stock (the **"Common Stock**") of the above-named company (the "Company") at the above-stated Warrant Price, all as set forth above and as adjusted pursuant to Section 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant. Reference is made to Section 5.4 of this Warrant whereby Silicon Valley Bank shall transfer this Warrant to its parent company, SVB Financial Group.

SECTION 1. EXERCISE.

1.1 Method of Exercise. Holder may at any time and from time to time exercise this Warrant, in whole or in part, by delivering to the Company this Warrant together with a duly executed Notice of Exercise in substantially the form attached hereto as Appendix 1 and, unless Holder is exercising this Warrant pursuant to a cashless exercise set forth in Section 1.2, a check, wire transfer of same-day funds (to an account designated by the Company), or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased. In no event shall an original ink-signed paper copy of this Warrant be required for any exercise of a Holder's rights hereunder, nor shall this Warrant or any physical copy thereof be required to be physically surrendered at the time of any exercise hereof.

1.2 Cashless Exercise. On any exercise of this Warrant, in lieu of payment of the aggregate Warrant Price in the manner as specified in Section 1.1 above, but otherwise in accordance with the requirements of Section 1.1, Holder may elect to receive Shares equal to the value of this Warrant, or portion hereof as to which this Warrant is being exercised. Thereupon, the Company shall issue to the Holder such number of fully paid and non-assessable Shares as are computed using the following formula:

X = Y(A-B)/A

where:

X = the number of Shares to be issued to the Holder;

Y = the number of Shares with respect to which this Warrant is being exercised (inclusive of the Shares surrendered to the Company in payment of the aggregate Warrant Price);

A = the Fair Market Value (as determined pursuant to Section 1.3 below) of one Share; and

B = the Warrant Price.

1.3 Fair Market Value. If the Company's Common Stock is then traded or quoted on a nationally recognized securities exchange, inter-dealer quotation system or over-the-counter market (a "**Trading Market**"), the fair market value of a Share shall be the closing price or last sale price of a share of Common Stock reported for the Business Day immediately before the date on which Holder delivers this Warrant together with its Notice of Exercise to the Company. If the Company's Common Stock is not traded in a Trading Market, the Board of Directors of the Company shall determine the fair market value of a Share in its reasonable good faith judgment.

1.4 Delivery of Certificate and New Warrant. Within a reasonable time after Holder exercises this Warrant in the manner set forth in Section 1.1 or 1.2 above, the Company shall deliver to Holder a certificate representing the Shares issued to Holder upon such exercise and, if this Warrant has not been fully exercised and has not expired, a new warrant of like tenor representing the Shares not so acquired.

1.5 Replacement of Warrant.

(a) Paper Original Warrant. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form, substance and amount to the Company or, in the case of mutilation, on surrender of this Warrant to the Company for cancellation, the Company shall, within a reasonable time, execute and deliver to Holder, in lieu of this Warrant, a new warrant of like tenor and amount.

(b) Electronic Original Warrant. If at any time this Warrant is rejected by any person (including but not limited to, paying or escrow agents) or any such person fails to comply with the terms of this Warrant based on this Warrant being presented to such person as an electronic record, a printout thereof, or any signature hereto being in electronic form, the Company, shall, promptly upon Holder's request without indemnity, execute and deliver to Holder, in lieu of electronic original versions of this warrant, a new warrant of like tenor and amount in paper form with original ink signatures.

1.6 Treatment of Warrant Upon Acquisition of Company.

(a) Acquisition. For the purpose of this Warrant, "**Acquisition**" means any transaction or series of related transactions involving: (i) the sale, lease, exclusive license, or other disposition of all or substantially all of the assets of the Company (ii) any merger or consolidation of the Company into or with another person or entity (other than a merger or consolidation effected exclusively to change the Company's domicile), or any other corporate reorganization, in which the stockholders of the Company in their capacity as such immediately prior to such merger, consolidation or reorganization, own less than a majority of the Company's (or the surviving or successor entity's) outstanding voting power immediately after such merger, consolidation or reorganization; or (iii) any sale or other transfer by the stockholders of the Company of shares representing at least a majority of the Company's then-total outstanding combined voting power.

(b) Treatment of Warrant at Acquisition. In the event of an Acquisition in which the consideration to be received by the Company's stockholders consists solely of cash, solely of Marketable Securities or a combination of cash and Marketable Securities (a "**Cash/Public Acquisition**"), and the fair market value of one Share as determined in accordance with Section 1.3 above would be greater than the Warrant Price in effect on such date immediately prior to such Cash/Public Acquisition, and Holder has not exercised this Warrant pursuant to Section 1.1 above as to all Shares, then this Warrant shall automatically be deemed to be cashless exercised pursuant to Section 1.2 above as to all Shares effective immediately prior to and contingent upon the consummation of a Cash/Public Acquisition. In connection with such cashless exercise, Holder shall be deemed to have restated each of the representations and warranties in Section 4 of the Warrant as of the date thereof and the Company shall promptly notify the Holder of the number of Shares (or such other securities) issued upon exercise. In the event of a Cash/Public Acquisition where the fair market value of one Share as determined in accordance with Section 1.3 above would be less than the Warrant Price in effect immediately prior to such Cash/Public Acquisition, then this Warrant will expire immediately prior to the consummation of such Cash/Public Acquisition.

(c) Upon the closing of any Acquisition other than a Cash/Public Acquisition defined above, the acquiring, surviving or successor entity shall assume the obligations of this Warrant, and this Warrant shall thereafter be exercisable for the same securities and/or other property as would have been paid for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on and as of the closing of such Acquisition, subject to further adjustment from time to time in accordance with the provisions of this Warrant.

(d) As used in this Warrant, **"Marketable Securities"** means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by Holder in connection with the Acquisition were Holder to exercise this Warrant on or prior to the closing thereof is then traded in a Trading Market, and (iii) following the closing of such Acquisition, Holder would not be restricted from publicly re-selling all of the issuer's shares and/or other securities that would be received by Holder in such Acquisition were Holder to exercise or convert this Warrant in full on or prior to the closing of such Acquisition, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Acquisition.

SECTION 2. ADJUSTMENTS TO THE SHARES AND WARRANT PRICE.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend or distribution on the outstanding shares of the Common Stock payable in securities or property (other than cash), then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without additional cost to Holder, the total number and kind of securities and property which Holder would have received had Holder owned the Shares of record as of the date the dividend or distribution occurred. If the Company subdivides the outstanding shares of the Common Stock by reclassification or otherwise into a greater number of shares, the number of Shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares of the Common Stock are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any event whereby all of the outstanding shares of the Common Stock are reclassified, exchanged, combined, substituted, or replaced for, into, with or by Company securities of a different class and/or series, then from and after the consummation of such event, this Warrant will be exercisable for the number, class and series of Company securities that Holder would have received had the Shares been outstanding on and as of the consummation of such event, and subject to further adjustment thereafter from time to time in accordance with the provisions of this Warrant. The provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, combinations substitutions, replacements or other similar events.

2.3 Intentionally Omitted.

2.4 Intentionally Omitted.

2.5 No Fractional Share. No fractional Share shall be issuable upon exercise of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional Share interest arises upon any exercise of the Warrant, the Company shall eliminate such fractional Share interest by paying Holder in cash the amount computed by multiplying the fractional interest by (i) the fair market value (as determined in accordance with Section 1.3 above) of a full Share, less (ii) the then-effective Warrant Price.

2.6 Notice/Certificate as to Adjustments. Upon each adjustment of the Warrant Price, Common Stock and/or number of Shares, the Company, at the Company's expense, shall notify Holder in writing within a reasonable time setting forth the adjustments to the Warrant Price, class and/or number of Shares and facts upon which such adjustment is based. The Company shall, upon written request from Holder, furnish Holder with a certificate of its Chief Financial Officer, including computations of such adjustment and the Warrant Price, class and number of Shares in effect upon the date of such adjustment.

SECTION 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to, and agrees with, the Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the price per share at which shares of Company Common Stock or options to purchase shares of Company Common Stock were valued in the most recent 409A valuation received by the Company prior to the Issue Date hereof. The initial Number of Shares referenced on the first page of this Warrant, 210,156 shares, is at least 0.55% of the Company's outstanding capital stock on a Fully Diluted Basis measured on the Issue Date of this Warrant. "Fully Diluted Basis" means the Company's outstanding capital stock, including (i) all common stock, (ii) all preferred stock on an as-converted to common stock basis, and (iii) all shares reserved for grant or issuance under the Company's employee equity incentive option pool, and assuming full conversion of all convertible securities (including all convertible notes) and exercise of all convertible securities and exercise of all convertible rights, options and warrants, reserved or outstanding, directly or indirectly, into common stock of the Company.

(b) All Shares which may be issued upon the exercise of this Warrant, shall, upon issuance, be duly authorized, validly issued, fully paid and non-assessable, and free of any liens and encumbrances except for restrictions on transfer provided for herein or under applicable federal and state securities laws. The Company covenants that it shall at all times cause to be reserved and kept available out of its authorized and unissued capital stock such number of securities as will be sufficient to permit the exercise in full of this Warrant.

(c) The Company's capitalization table attached hereto as Schedule 1 is true and complete, in all material respects, as of the Issue Date.

3.2 Notice of Certain Events. If the Company proposes at any time to:

(a) declare any dividend or distribution upon the outstanding shares of the Company's stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend;

(b) offer for subscription or sale pro rata to the holders of the outstanding shares any additional shares of any class or series of the Company's stock (other than pursuant to contractual pre-emptive rights);

(c) effect any reclassification, exchange, combination, substitution, reorganization or recapitalization of the outstanding shares of the Common Stock;

(d) effect an Acquisition or to liquidate, dissolve or wind up; or

(e) effect its initial, underwritten offering and sale of its securities to the public pursuant to an effective registration statement under the Act (the "IPO");

then, in connection with each such event, the Company shall give Holder:

(1) in the case of the matters referred to in (a) and (b) above, at least seven (7) Business Days prior written notice of the earlier to occur of the effective date thereof or the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of outstanding shares of the Common Stock will be entitled thereto) or for determining rights to vote, if any,

(2) in the case of the matters referred to in (c) and (d) above at least seven (7) Business Days prior written notice of the date when the same will take place (and specifying the date on which the holders of outstanding shares of the Common Stock will be entitled to exchange their shares for the securities or other property deliverable upon the occurrence of such event and such reasonable information as Holder may reasonably require regarding the treatment of this Warrant in connection with such event giving rise to the notice); and

(3) with respect to the IPO, at least seven (7) Business Days prior written notice of the date on which the Company proposes to file its registration statement in connection therewith.

Company will also provide information requested by Holder that is reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements. Holder agrees that all information provided by the Company to Holder pursuant to this Section 3.2 is subject to the confidentiality provisions set forth in Section 12.9 of the Loan Agreement.

SECTION 4. REPRESENTATIONS; WARRANTIES OF THE HOLDER.

The Holder represents and warrants to the Company as follows:

4.1 Purchase for Own Account. This Warrant and the Shares to be acquired upon exercise of this Warrant by Holder are being acquired for investment for Holder's account, not as a nominee or agent, and not with a view to the public resale or distribution within the meaning of the Act. Holder also represents that it has not been formed for the specific purpose of acquiring this Warrant or the Shares.

4.2 Disclosure of Information. Holder is aware of the Company's business affairs and financial condition and has received or has had full access to all the information it considers necessary or appropriate to make an informed investment decision with respect to the acquisition of this Warrant and its underlying securities. Holder further has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of this Warrant and its underlying securities and to obtain additional information (to the extent the Company possessed such information or could acquire it without unreasonable effort or expense) necessary to verify any information furnished to Holder or to which Holder has access.

4.3 Investment Experience. Holder understands that the purchase of this Warrant and its underlying securities involves substantial risk. Holder has experience as an investor in securities of companies in the development stage and acknowledges that Holder can bear the economic risk of such Holder's investment in this Warrant and its underlying securities and has such knowledge and experience in financial or business matters that Holder is capable of evaluating the merits and risks of its investment in this Warrant and its underlying securities and/or has a preexisting personal or business relationship with the Company and certain of its officers, directors or controlling persons of a nature and duration that enables Holder to be aware of the character, business acumen and financial circumstances of such persons.

4.4 Accredited Investor Status. Holder is an "accredited investor" within the meaning of Regulation D promulgated under the Act.

4.5 The Act. Holder understands that this Warrant and the Shares issuable upon exercise hereof have not been registered under the Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of the Holder's investment intent as expressed herein. Holder understands that this Warrant and the Shares issued upon any exercise hereof are "restricted securities" under the applicable federal and state securities laws and must be held indefinitely unless subsequently registered under the Act and qualified under applicable state securities laws, or unless exemption from such registration and qualification are otherwise available. Holder is aware of the provisions of Rule 144 promulgated under the Act.

4.6 Market Stand-off Agreement. Holder agrees that the Shares shall be subject to the Market Standoff provisions in Section 2.11 of the Investors' Rights Agreement, dated as of February 15, 2019, by and among the Company and certain of its investors.

4.7 No Voting Rights. Holder, as a Holder of this Warrant, will not have any voting rights until the exercise of this Warrant.

4.8 No Public Market. Holder understands that no public market now exists for any of the securities issued by the Company, and that the Company has made no assurances that a public market will ever exist for the Shares issuable upon exercise hereof.

SECTION 5. MISCELLANEOUS.

5.1 Term and Automatic Conversion Upon Expiration.

(a) Term. Subject to the provisions of Section 1.6 above, this Warrant is exercisable in whole or in part at any time and from time to time on or before 6:00 PM, Pacific Time, on the Expiration Date and shall be void thereafter.

(b) Automatic Cashless Exercise upon Expiration. In the event that, upon the Expiration Date, the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price in effect on such date, then this Warrant shall automatically be deemed on and as of such date to be exercised pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised, and the Company shall, within a reasonable time, deliver a certificate representing the Shares (or such other securities) issued upon such exercise to Holder.

5.2 Legends. The Shares (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) shall be imprinted with a legend in substantially the following form:

THE SHARES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AS SET FORTH IN THAT CERTAIN WARRANT TO PURCHASE COMMON STOCK ISSUED BY THE ISSUER TO SILICON VALLEY BANK DATED _____ MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND LAWS OR IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER, SUCH OFFER, SALE, PLEDGE OR OTHER TRANSFER IS EXEMPT FROM SUCH REGISTRATION.

5.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issuable upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part except in compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require Holder to provide an opinion of counsel if the transfer is to SVB Financial Group (Silicon Valley Bank's parent company) or any other affiliate of Holder, provided that any such transferee is an "accredited investor" as defined in Regulation D promulgated under the Act. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of Rule 144 promulgated under the Act.

5.4 Transfer Procedure. After receipt by Silicon Valley Bank of the executed Warrant, Silicon Valley Bank will transfer all of this Warrant to its parent company, SVB Financial Group. By its acceptance of this Warrant, SVB Financial Group hereby makes to the Company each of the representations and warranties set forth in Section 4 hereof and agrees to be bound by all of the terms and conditions of this Warrant as if the original Holder hereof. Subject to the provisions of Section 5.3 and upon providing the Company with written notice, SVB Financial Group and any subsequent Holder may transfer all or part of this Warrant or the Shares issuable upon exercise of this Warrant (or the securities issuable directly or indirectly, upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, SVB Financial Group or any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable); and provided further, that any subsequent transferee other than SVB Financial Group shall agree in writing with the Company to be bound by all of the terms and conditions of this Warrant. Notwithstanding any contrary provision herein, at all times prior to the IPO, Holder may not, without the Company's prior written consent, transfer this Warrant or any portion hereof, or any Shares issued upon any exercise hereof, or any shares or other securities issued upon any conversion of any Shares issued upon any exercise hereof, to any person or entity who directly competes with the Company, except in connection with an Acquisition of the Company by such a direct competitor.

5.5 Notices. All notices and other communications hereunder from the Company to the Holder, or vice versa, shall be deemed delivered and effective (i) when given personally, (ii) on the third (3rd) Business Day after being mailed by first-class registered or certified mail, postage prepaid, (iii) upon actual receipt if given by electronic mail and such receipt is confirmed in writing by the recipient, or (iv) on the first Business Day following delivery to a reliable overnight courier service, courier fee prepaid, in any case at such address as may have been furnished to the Company or Holder, as the case may be, in writing by the Company or such Holder from time to time in accordance with the provisions of this Section 5.5. All notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

SVB Financial Group

Attn: Treasury Department

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

Spruce Biosciences, Inc.
Attn: Chief Executive Officer

With a copy (which shall not constitute notice) to:

Cooley LLP
Attn: Kenneth L. Guernsey

5.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated (either generally or in a particular instance and either retroactively or prospectively) only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

5.7 Attorney's Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

5.8 Counterparts: Electronic Signatures; Status as Certificated Security. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement. Company, Holder and any other party hereto may execute this Warrant by electronic means and each party hereto recognizes and accepts the use of electronic signatures and records by any other party hereto in connection with the execution and storage hereof. To the extent that this Warrant or any agreement subject to the terms hereof or any amendment hereto is executed, recorded or delivered electronically, it shall be binding to the same extent as though it had been executed on paper with an original ink signature. The fact that this Warrant is executed, signed, stored or delivered electronically shall not prevent the transfer by any Holder of this Warrant pursuant to Section 5.4 or the enforcement of the terms hereof. This Warrant, and any copies hereof, shall NOT be deemed to be a "certificated security" within the meaning of Section 8102(a)(4) of the California Commercial Code. Physical possession of the original of this Warrant or any paper copy thereof shall confer no special status to the bearer thereof.

5.9 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

5.10 Headings. The headings in this Warrant are for purposes of reference only and shall not limit or otherwise affect the meaning of any provision of this Warrant.

5.11 Business Days. "**Business Day**" is any day that is not a Saturday, Sunday or a day on which Silicon Valley Bank is closed.

[Remainder of page left blank intentionally]
[Signature page follows]

IN WITNESS WHEREOF, the parties have caused this Warrant to Purchase Common Stock to be executed by their duly authorized representatives effective as of the Issue Date written above.

"COMPANY"

SPRUCE BIOSCIENCES, INC., a Delaware corporation

By: /s/ Richard King

Name: Richard King
(Print)

Title: Chief Executive Officer

"HOLDER"

SILICON VALLEY BANK

By: /s/ Shawn Parry

Name: Shawn Parry
(Print)

Title: Director

APPENDIX 1

NOTICE OF EXERCISE

1. The undersigned Holder hereby exercises its right to purchase _____ shares of the Common Stock of Spruce Biosciences, Inc. (the "**Company**") in accordance with the attached Warrant to Purchase Common Stock, and tenders payment of the aggregate Warrant Price for such shares as follows:

Check in the amount of $ payable to the order of the Company enclosed herewith

[ ] Wire transfer of immediately available funds to the Company's account

[ ] Cashless exercise pursuant to Section 1.2 of the Warrant

[ ] Other [Describe] _____

2. Please issue a certificate or certificates representing the Shares in the name specified below:

_____

Holder's Name

_____

(Address)

3. By its execution below and for the benefit of the Company, Holder hereby restates each of the representations and warranties in Section 4 of the Warrant to Purchase Common Stock as of the date hereof.

HOLDER:

_____

By: _____

Title: _____

(Date): _____

SCHEDULE 1

Company Capitalization Table

See attached

SPRUCE BIOSCIENCES, INC.

2016 EQUITY INCENTIVE PLAN

Amended and Restated on February 19, 2020

1. Purpose.

The purpose of the Plan is to advance the interests of the Company's stockholders by enhancing the Company's ability to attract, retain and motivate persons who make (or are expected to make) important contributions to the Company by providing such persons with equity ownership opportunities and thereby better aligning the interests of such persons with those of the Company's stockholders. Capitalized terms used in the Plan are defined in Section 11 below.

2. Eligibility.

Service Providers are eligible to be granted Awards under the Plan, subject to the limitations described herein.

3. Administration and Delegation.

3.1 Administration. The Plan will be administered by the Administrator. The Administrator shall have authority to determine which Service Providers will receive Awards, to grant Awards and to set all terms and conditions of Awards (including, but not limited to, vesting, exercise and forfeiture provisions). In addition, the Administrator shall have the authority to take all actions and make all determinations contemplated by the Plan and to adopt, amend and repeal such administrative rules, guidelines and practices relating to the Plan as it shall deem advisable. The Administrator may correct any defect or ambiguity, supply any omission or reconcile any inconsistency in the Plan or any Award in the manner and to the extent it shall deem necessary or appropriate to carry the Plan and any Awards into effect, as determined by the Administrator. The Administrator shall make all determinations under the Plan in the Administrator's sole discretion and all such determinations shall be final and binding on all persons having or claiming any interest in the Plan or in any Award.

3.2 Appointment of Committees. To the extent permitted by Applicable Laws, the Board may delegate any or all of its powers under the Plan to one or more Committees. The Board may abolish any Committee at any time and re-vest in itself any previously delegated authority.

4. Stock Available for Awards.

4.1 Number of Shares. Subject to adjustment under Section 8 hereof, Awards may be made under the Plan covering up to seventeen million six hundred forty five thousand nine hundred six (17,645,906) shares of Common Stock. If any Award expires or lapses or is terminated, surrendered or canceled without having been fully exercised or is forfeited in whole or in part (including as the result of shares of Common Stock subject to such Award being

repurchased by the Company at or below the original issuance price), in any case in a manner that results in any shares of Common Stock covered by such Award not being issued or being so reacquired by the Company, the unused Common Stock covered by such Award shall again be available for the grant of Awards under the Plan. Further, shares of Common Stock delivered (either by actual delivery or attestation) to the Company by a Participant to satisfy the applicable exercise or purchase price of an Award and/or to satisfy any applicable tax withholding obligation (including shares retained by the Company from the Award being exercised or purchased and/or creating the tax obligation) shall be added to the number of shares of Common Stock available for the grant of Awards under the Plan. However, in the case of Incentive Stock Options (as hereinafter defined), the foregoing provisions shall be subject to any limitations under the Code. Shares of Common Stock issued under the Plan may consist in whole or in part of authorized but unissued shares, shares purchased on the open market or treasury shares.

4.2 Substitute Awards. In connection with a merger or consolidation of an entity with the Company or the acquisition by the Company of property or stock of an entity, the Administrator may grant Awards in substitution for any options or other stock or stock-based awards granted prior to such merger or consolidation by such entity or an affiliate thereof. Substitute Awards may be granted on such terms as the Administrator deems appropriate in the circumstances, notwithstanding any limitations on Awards contained in the Plan. Substitute Awards shall not count against the overall share limit set forth in Section 4.1 hereof, except as may be required by reason of Section 422 of the Code.

5. Stock Options.

5.1 General. The Administrator may grant Options to any Service Provider, subject to the limitations on Incentive Stock Options described below. The Administrator shall determine the number of shares of Common Stock to be covered by each Option, the exercise price of each Option and the conditions and limitations applicable to the exercise of each Option, including conditions relating to Applicable Laws, as it considers necessary or advisable.

5.2 Incentive Stock Options. The Administrator may grant Options intended to qualify as Incentive Stock Options only to employees of the Company, any of the Company's present or future "parent corporations" or "subsidiary corporations" as defined in Sections 424(e) or (f) of the Code, respectively, and any other entities the employees of which are eligible to receive Incentive Stock Options under the Code. All Options intended to qualify as Incentive Stock Options shall be subject to and shall be construed consistently with the requirements of Section 422 of the Code. Neither the Company nor the Administrator shall have any liability to a Participant, or any other party, (i) if an Option (or any part thereof) which is intended to qualify as an Incentive Stock Option fails to qualify as an Incentive Stock Option or (ii) for any action or omission by the Administrator that causes an Option not to qualify as an Incentive Stock Option, including without limitation, the conversion of an Incentive Stock Option to a Non-Qualified Stock Option or the grant of an Option intended as an Incentive Stock Option that fails to satisfy the requirements under the Code applicable to an Incentive Stock Option. Any Option that is intended to qualify as an Incentive Stock Option, but fails to so qualify for any reason, including without limitation, the portion of any Option becoming exercisable in excess of the $100,000 limitation described in Treasury Regulation Section 1.422-4, shall be treated as a Non-Qualified Stock Option for all purposes.

5.3 Exercise Price. The Administrator shall establish the exercise price of each Option and specify the exercise price in the applicable Award Agreement. The exercise price shall be not less than 100% of the Fair Market Value on the date the Option is granted. In the case of an Incentive Stock Option granted to an employee who, at the time of grant of the Option, owns (or is treated as owning under Section 424 of the Code) stock representing more than 10% of the voting power of all classes of stock of the Company (or a "parent corporation" or "subsidiary corporation" thereof within the meaning of Sections 424(e) or 424(f) of the Code, respectively), the per share exercise price shall be no less than 110% of the Fair Market Value on the date the Option is granted.

5.4 Duration of Options. Each Option shall be exercisable at such times and subject to such terms and conditions as the Administrator may specify in the applicable Award Agreement, provided that the term of any Option shall not exceed ten years. In the case of an Incentive Stock Option granted to an employee who, at the time of grant of the Option, owns (or is treated as owning under Section 424 of the Code) stock representing more than 10% of the voting power of all classes of stock of the Company (or a "parent corporation" or "subsidiary corporation" thereof within the meaning of Sections 424(e) or 424(f) of the Code, respectively), the term of the Option shall not exceed five years.

5.5 Exercise of Option; Notification of Disposition. Options may be exercised by delivery to the Company of a written notice of exercise, in a form approved by the Administrator (which may be an electronic form), signed by the person authorized to exercise the Option, together with payment in full (i) as specified in Section 5.6 hereof for the number of shares for which the Option is exercised and (ii) as specified in Section 9.5 hereof for any applicable withholding taxes. Unless otherwise determined by the Administrator, an Option may not be exercised for a fraction of a share of Common Stock. If an Option is designated as an Incentive Stock Option, the Participant shall give prompt notice to the Company of any disposition or other transfer of any shares of Common Stock acquired from the Option if such disposition or transfer is made (i) within two years from the grant date with respect to such Option or (ii) within one year after the transfer of such shares to the Participant (other than any such disposition made in connection with a Change in Control). Such notice shall specify the date of such disposition or other transfer and the amount realized, in cash, other property, assumption of indebtedness or other consideration, by the Participant in such disposition or other transfer.

5.6 Payment Upon Exercise. Common Stock purchased upon the exercise of an Option granted under the Plan shall be paid for in cash or by check, payable to the order of the Company, or, to the extent permitted by the Administrator, by:

(a) (A) delivery of an irrevocable and unconditional undertaking by a broker acceptable to the Company to deliver promptly to the Company sufficient funds to pay the exercise price and any required tax withholding, or (B) delivery by the Participant to the Company of a copy of irrevocable and unconditional instructions to a broker acceptable to the Company to deliver promptly to the Company cash or a check sufficient to pay the exercise price and any required tax withholding;

(b) delivery (either by actual delivery or attestation) of shares of Common Stock owned by the Participant valued at their Fair Market Value, provided (A) such method of payment is then permitted under Applicable Laws, (B) such Common Stock, if acquired directly from the Company, was owned by the Participant for such minimum period of time, if any, as may be established by the Company at any time, and (C) such Common Stock is not subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements;

(c) surrendering shares of Common Stock then issuable upon exercise of the Option valued at their Fair Market Value on the date of exercise;

(d) delivery of a promissory note of the Participant to the Company on terms determined by the Administrator;

(e) delivery of property of any other kind which constitutes good and valuable consideration as determined by the Administrator; or

(f) any combination of the above permitted forms of payment (including cash or check).

5.7 Early Exercise of Options. The Administrator may provide in the terms of an Award Agreement that the Service Provider may exercise an Option in whole or in part prior to the full vesting of the Option in exchange for unvested shares of Restricted Stock with respect to any unvested portion of the Option so exercised. Shares of Restricted Stock acquired upon the exercise of any unvested portion of an Option shall be subject to such terms and conditions as the Administrator shall determine.

6. Restricted Stock; Restricted Stock Units.

6.1 General. The Administrator may grant Restricted Stock, or the right to purchase Restricted Stock, to any Service Provider, subject to the right of the Company to repurchase all or part of such shares at their issue price or other stated or formula price from the Participant (or to require forfeiture of such shares if issued at no cost) in the event that conditions specified by the Administrator in the applicable Award Agreement are not satisfied prior to the end of the applicable restriction period or periods established by the Administrator for such Award. In addition, the Administrator may grant to Service Providers Restricted Stock Units, which may be subject to vesting and forfeiture conditions during applicable restriction period or periods, as set forth in an applicable Award Agreement.

6.2 Terms and Conditions for All Restricted Stock and Restricted Stock Unit Awards. The Administrator shall determine and set forth in the applicable Award Agreement the terms and conditions applicable to each Restricted Stock and Restricted Stock Unit Award, including the conditions for vesting and repurchase (or forfeiture) and the issue price, in each case, if any.

6.3 Additional Provisions Relating to Restricted Stock.

(a) *Dividends*. Participants holding shares of Restricted Stock will be entitled to all ordinary cash dividends paid with respect to such shares to the extent such dividends have a record date that is on or after the date on which the Participant to whom such Restricted Shares are granted becomes the record holder of such Restricted Shares, unless otherwise provided by the Administrator in the applicable Award Agreement. In addition, unless otherwise provided by the Administrator, if any dividends or distributions are paid in shares, or consist of a dividend or distribution to holders of Common Stock of property other than an ordinary cash dividend, the shares or other property will be subject to the same restrictions on transferability and forfeitability as the shares of Restricted Stock with respect to which they were paid. Each dividend payment will be made as provided in the applicable Award Agreement, but in no event later than the end of the calendar year in which the dividends are paid to stockholders of that class of stock or, if later, the 15th day of the third month following the later of (A) the date the dividends are paid to stockholders of that class of stock, and (B) the date the dividends are no longer subject to forfeiture.

(b) *Stock Certificates*. The Company may require that any stock certificates issued in respect of shares of Restricted Stock be deposited in escrow by the Participant, together with a stock power endorsed in blank, with the Company (or its designee).

6.4 Additional Provisions Relating to Restricted Stock Units.

(a) *Settlement*. Upon the vesting of a Restricted Stock Unit, the Participant shall be entitled to receive from the Company one share of Common Stock or an amount of cash or other property equal to the Fair Market Value of one share of Common Stock on the settlement date, as the Administrator shall determine and as provided in the applicable Award Agreement. The Administrator may provide that settlement of Restricted Stock Units shall occur upon or as soon as reasonably practicable after the vesting of the Restricted Stock Units or shall instead be deferred, on a mandatory basis or at the election of the Participant, in a manner that complies with Section 409A.

(b) *Voting Rights*. A Participant shall have no voting rights with respect to any Restricted Stock Units unless and until shares are delivered in settlement thereof.

(c) *Dividend Equivalents*. To the extent provided by the Administrator, a grant of Restricted Stock Units may provide a Participant with the right to receive Dividend Equivalents. Dividend Equivalents may be paid currently or credited to an account for the Participant, may be settled in cash and/or shares of Common Stock and may be subject to the same restrictions on transfer and forfeitability as the Restricted Stock Units with respect to which the Dividend Equivalents are paid, as determined by the Administrator, subject, in each case, to such terms and conditions as the Administrator shall establish and set forth in the applicable Award Agreement.

7. Other Stock-Based Awards.

Other Stock-Based Awards may be granted hereunder to Participants, including, without limitation, Awards entitling Participants to receive shares of Common Stock to be delivered in the future. Such Other Stock-Based Awards shall also be available as a form of payment in the settlement of other Awards granted under the Plan, as stand-alone payments and/or as payment in lieu of compensation to which a Participant is otherwise entitled. Other Stock-Based Awards may be paid in shares of Common Stock, cash or other property, as the Administrator shall determine. Subject to the provisions of the Plan, the Administrator shall determine the terms and conditions of each Other Stock-Based Award, including any purchase price, transfer restrictions, vesting conditions and other terms and conditions applicable thereto, which shall be set forth in the applicable Award Agreement.

8. Adjustments for Changes in Common Stock and Certain Other Events.

8.1 In the event that the Administrator determines that any dividend or other distribution (whether in the form of cash, Common Stock, other securities, or other property), reorganization, merger, consolidation, combination, repurchase, recapitalization, liquidation, dissolution, or sale, transfer, exchange or other disposition of all or substantially all of the assets of the Company, or sale or exchange of Common Stock or other securities of the Company, issuance of warrants or other rights to purchase Common Stock or other securities of the Company, or other similar corporate transaction or event, as determined by the Administrator, affects the Common Stock such that an adjustment is determined by the Administrator to be appropriate in order to prevent dilution or enlargement of the benefits or potential benefits intended by the Company to be made available under the Plan or with respect to any Award, then the Administrator may, in such manner as it may deem equitable, adjust any or all of:

(a) the number and kind of shares of Common Stock (or other securities or property) with respect to which Awards may be granted or awarded (including, but not limited to, adjustments of the limitations in Section 4 hereof on the maximum number and kind of shares which may be issued);

(b) the number and kind of shares of Common Stock (or other securities or property) subject to outstanding Awards;

(c) the grant or exercise price with respect to any Award; and

(d) the terms and conditions of any Awards (including, without limitation, any applicable financial or other performance "targets" specified in an Award Agreement).

8.2 In the event of any transaction or event described in Section 8.1 hereof (including without limitation any Change in Control) or any unusual or nonrecurring transaction or event affecting the Company or the financial statements of the Company, or any change in any Applicable Laws or accounting principles, the Administrator, on such terms and conditions as it deems appropriate, either by the terms of the Award or by action taken prior to the occurrence of such transaction or event and either automatically or upon the Participant's request, is hereby authorized to take any one or more of the following actions whenever the Administrator determines that such action is appropriate in order to (x) prevent dilution or enlargement of the benefits or potential benefits intended by the Company to be made available under the Plan or with respect to any Award granted or issued under the Plan, (y) to facilitate such transaction or event or (z) give effect to such changes in Applicable Laws or accounting principles**:**

(a) To provide for the cancellation of any such Award in exchange for either an amount of cash or other property with a value equal to the amount that could have been obtained upon the exercise or settlement of the vested portion of such Award or realization of the Participant's rights under the vested portion of such Award, as applicable; provided that, if the amount that could have been obtained upon the exercise or settlement of the vested portion of such Award or realization of the Participant's rights, in any case, is equal to or less than zero, then the vested portion of such Award may be terminated without payment;

(b) To provide that such Award shall vest and, to the extent applicable, be exercisable as to all shares covered thereby, notwithstanding anything to the contrary in the Plan or the provisions of such Award;

(c) To provide that such Award be assumed by the successor or survivor corporation, or a parent or subsidiary thereof, or shall be substituted for by awards covering the stock of the successor or survivor corporation, or a parent or subsidiary thereof, with appropriate adjustments as to the number and kind of shares and applicable exercise or purchase price, in all cases, as determined by the Administrator;

(d) To make adjustments in the number and type of shares of Common Stock (or other securities or property) subject to outstanding Awards, and/or in the terms and conditions of (including the grant or exercise price), and the criteria included in, outstanding Awards which may be granted in the future;

(e) To replace such Award with other rights or property selected by the Administrator; and/or

(f) To provide that the Award will terminate and cannot vest, be exercised or become payable after the applicable event.

8.3 Notwithstanding the provisions of Section 8.2 above, if a Change in Control occurs and a Participant's Awards are not continued, converted, assumed, or replaced with a substantially similar award by (i) the Company, or (ii) a successor entity or its parent or subsidiary (an "Assumption"), and provided that the Participant has not had a Termination of Service, then immediately prior to the Change in Control such Awards shall become fully vested,

exercisable and/or payable, as applicable, and all forfeiture, repurchase and other restrictions on such Awards shall lapse, in which case, such Awards shall be canceled upon the consummation of the Change in Control in exchange for the right to receive the Change in Control consideration payable to other holders of Common Stock (A) which may be on such terms and conditions as apply generally to holders of Common Stock under the Change in Control documents (including, without limitation, any escrow, earn-out or other deferred consideration provisions) or such other terms and conditions as the Administrator may provide, and (B) determined by reference to the number of shares subject to such Awards and net of any applicable exercise price; provided that to the extent that any Awards constitute "nonqualified deferred compensation" that may not be paid upon the Change in Control under Section 409A without the imposition of taxes thereon under Section 409A, the timing of such payments shall be governed by the applicable Award Agreement (subject to any deferred consideration provisions applicable under the Change in Control documents); and provided, further, that if the amount to which a Participant would be entitled upon the settlement or exercise of such Award at the time of the Change in Control is equal to or less than zero, then such Award may be terminated without payment. The Administrator shall determine whether an Assumption of an Award has occurred in connection with a Change in Control.

8.4 In connection with the occurrence of any Equity Restructuring, and notwithstanding anything to the contrary in this Section 8, the Administrator will equitably adjust each outstanding Award, which adjustments may include adjustments to the number and type of securities subject to each outstanding Award and/or the exercise price or grant price thereof, if applicable, the grant of new Awards to Participants, and/or the making of a cash payment to Participants, as the Administrator deems appropriate to reflect such Equity Restructuring. The adjustments provided under this Section 8.4 shall be nondiscretionary and shall be final and binding on the affected Participant and the Company; provided that whether an adjustment is equitable shall be determined by the Administrator.

8.5 In the event of any pending stock dividend, stock split, combination or exchange of shares, merger, consolidation or other distribution (other than normal cash dividends) of Company assets to stockholders, or any other change affecting the shares of Common Stock or the share price of the Common Stock, including any Equity Restructuring, for reasons of administrative convenience the Administrator may refuse to permit the exercise of any Award during a period of up to thirty days prior to the consummation of any such transaction.

8.6 Except as expressly provided in the Plan or pursuant to action of the Administrator under the Plan, no Participant shall have any rights by reason of any subdivision or consolidation of shares of stock of any class, the payment of any dividend, any increase or decrease in the number of shares of stock of any class or any dissolution, liquidation, merger, or consolidation of the Company or any other corporation. Except as expressly provided in the Plan or pursuant to action of the Administrator under the Plan, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number of shares of Common Stock subject to an Award or the grant or exercise price of any Award. The existence of the Plan, any Award Agreements and the Awards granted hereunder shall not affect or restrict in any way the right or power of the Company to make or authorize (i) any adjustment, recapitalization, reorganization or other change in the Company's capital structure or its business, (ii) any merger,

consolidation dissolution or liquidation of the Company or sale of Company assets or (iii) any sale or issuance of securities, including without limitation, securities with rights superior to those of the Common Stock or which are convertible into or exchangeable for Common Stock. The Administrator may treat Participants and Awards (or portions thereof) differently under this Section 8.

9. General Provisions Applicable to Awards.

9.1 Transferability. Except as the Administrator may otherwise determine or provide in an Award Agreement or otherwise, in any case in accordance with Applicable Laws, Awards shall not be sold, assigned, transferred, pledged or otherwise encumbered by the person to whom they are granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution, and, during the life of the Participant, shall be exercisable only by the Participant. References to a Participant, to the extent relevant in the context, shall include references to authorized transferees.

9.2 Documentation. Each Award shall be evidenced in an Award Agreement, which may be in such form (written, electronic or otherwise) as the Administrator shall determine. Each Award may contain terms and conditions in addition to those set forth in the Plan.

9.3 Discretion. Except as otherwise provided by the Plan, each Award may be made alone or in addition or in relation to any other Award. The terms of each Award to a Participant need not be identical, and the Administrator need not treat Participants or Awards (or portions thereof) uniformly.

9.4 Termination of Status. The Administrator shall determine the effect on an Award of the disability, death, retirement, authorized leave of absence or any other change or purported change in a Participant's Service Provider status and the extent to which, and the period during which, the Participant, the Participant's legal representative, conservator, guardian or Designated Beneficiary may exercise rights under the Award, if applicable.

9.5 Withholding. Each Participant shall pay to the Company, or make provision satisfactory to the Administrator for payment of, any taxes required by law to be withheld in connection with Awards to such Participant no later than the date of the event creating the tax liability. Except as the Administrator may otherwise determine, all such payments shall be made in cash or by certified check. Notwithstanding the foregoing, to the extent permitted by the Administrator, Participants may satisfy such tax obligations in whole or in part by delivery of shares of Common Stock, including shares retained from the Award creating the tax obligation, valued at their Fair Market Value. The Company may, to the extent permitted by Applicable Laws, deduct any such tax obligations from any payment of any kind otherwise due to a Participant.

9.6 Amendment of Award. The Administrator may amend, modify or terminate any outstanding Award, including but not limited to, substituting therefor another Award of the same or a different type, changing the date of exercise or settlement, and converting an Incentive Stock Option to a Non-Qualified Stock Option. The Participant's consent to such action shall be required unless (i) the Administrator determines that the action, taking into account any related action, would not materially and adversely affect the Participant, or (ii) the change is permitted under Section 8 and 10.6 hereof.

9.7 Conditions on Delivery of Stock. The Company will not be obligated to deliver any shares of Common Stock pursuant to the Plan or to remove restrictions from shares previously delivered under the Plan until (i) all conditions of the Award have been met or removed to the satisfaction of the Company, (ii) in the opinion of the Company's counsel, all other legal matters in connection with the issuance and delivery of such shares have been satisfied, including any applicable securities laws and any applicable stock exchange or stock market rules and regulations, and (iii) the Participant has executed and delivered to the Company such representations or agreements as the Administrator deems necessary or appropriate to satisfy the requirements of any Applicable Laws. The inability of the Company to obtain authority from any regulatory body having jurisdiction, which authority is determined by the Administrator to be necessary to the lawful issuance and sale of any securities hereunder, shall relieve the Company of any liability in respect of the failure to issue or sell such shares as to which such requisite authority shall not have been obtained.

9.8 Acceleration. The Administrator may at any time provide that any Award shall become immediately vested and/or exercisable in full or in part, free of some or all restrictions or conditions, or otherwise realizable in full or in part, as the case may be.

10. Miscellaneous.

10.1 No Right To Employment or Other Status. No person shall have any claim or right to be granted an Award, and the grant of an Award shall not be construed as giving a Participant the right to continued employment or any other relationship with the Company. The Company expressly reserves the right at any time to dismiss or otherwise terminate its relationship with a Participant free from any liability or claim under the Plan or any Award, except as expressly provided in an applicable Award Agreement.

10.2 No Rights As Stockholder; Certificates. Subject to the provisions of the applicable Award Agreement, no Participant or Designated Beneficiary shall have any rights as a stockholder with respect to any shares of Common Stock to be distributed with respect to an Award until becoming the record holder of such shares. Notwithstanding any other provision of the Plan, unless otherwise determined by the Administrator or required by any Applicable Laws, the Company shall not be required to deliver to any Participant certificates evidencing shares of Common Stock issued in connection with any Award and instead such shares of Common Stock may be recorded in the books of the Company (or, as applicable, its transfer agent or stock plan administrator). The Company may place legends on any stock certificates issued under the Plan deemed necessary or appropriate by the Administrator in order to comply with Applicable Laws.

10.3 Effective Date and Term of Plan. The Plan shall become effective on the date on which it is adopted by the Board. No Awards shall be granted under the Plan after the completion of ten years from the earlier of (i) the date on which the Plan was adopted by the Board or (ii) the date the Plan was approved by the Company's stockholders, but Awards previously granted may extend beyond that date in accordance with the terms of the Plan.

10.4 Amendment of Plan. The Administrator may amend, suspend or terminate the Plan or any portion thereof at any time; provided that no amendment of the Plan shall materially and adversely affect any Award outstanding at the time of such amendment without the consent of the affected Participant. Awards outstanding under the Plan at the time of any suspension or termination of the Plan shall continue to be governed in accordance with the terms of the Plan and the applicable Award Agreement, as in effect prior to such suspension or termination. The Board shall obtain stockholder approval of any Plan amendment to the extent necessary to comply with Applicable Laws.

10.5 Provisions for Foreign Participants. The Administrator may modify Awards granted to Participants who are foreign nationals or employed outside the United States or establish subplans or procedures under the Plan to address differences in laws, rules, regulations or customs of such foreign jurisdictions with respect to tax, securities, currency, employee benefit or other matters.

10.6 Section 409A.

(a) *General*. The Company intends that all Awards be structured in compliance with, or to satisfy an exemption from, Section 409A, such that no adverse tax consequences, interest, or penalties under Section 409A apply in connection with any Awards. Notwithstanding anything herein or in any Award Agreement to the contrary, the Administrator may, without a Participant's prior consent, amend this Plan and/or Awards, adopt policies and procedures, or take any other actions (including amendments, policies, procedures and actions with retroactive effect) as are necessary or appropriate to preserve the intended tax treatment of Awards under the Plan, including without limitation, any such actions intended to (A) exempt this Plan and/or any Award from the application of Section 409A, and/or (B) comply with the requirements of Section 409A, including without limitation any such regulations, guidance, compliance programs and other interpretative authority that may be issued after the date of grant of any Award. The Company makes no representations or warranties as to the tax treatment of any Award under Section 409A or otherwise. The Company shall have no obligation under this Section 10.6 or otherwise to take any action (whether or not described herein) to avoid the imposition of taxes, penalties or interest under Section 409A with respect to any Award and shall have no liability to any Participant or any other person if any Award, compensation or other benefits under the Plan are determined to constitute non-compliant, "nonqualified deferred compensation" subject to the imposition of taxes, penalties and/or interest under Section 409A.

(b) *Separation from Service*. With respect to any Award that constitutes "nonqualified deferred compensation" under Section 409A, any payment or settlement of such Award that is to be made upon a termination of a Participant's Service Provider relationship shall, to the extent necessary to avoid the imposition of taxes under Section 409A, be made only upon the Participant's "separation from service" (within the meaning of Section 409A), whether such "separation from service" occurs upon or subsequent to the termination of the Participant's Service Provider relationship. For purposes of any such provision of this Plan or any Award Agreement relating to any such payments or benefits, references to a "termination," "termination of employment" or like terms shall mean "separation from service."

(c) *Payments to Specified Employees*. Notwithstanding any contrary provision in the Plan or any Award Agreement, any payment(s) of "nonqualified deferred compensation" that are otherwise required to be made under an Award to a "specified employee" (as defined under Section 409A and determined by the Administrator) as a result of his or her "separation from service" shall, to the extent necessary to avoid the imposition of taxes under Code Section 409A(a)(2)(B)(i), be delayed until the expiration of the six-month period immediately following such "separation from service" (or, if earlier, until the date of death of the specified employee) and shall instead be paid (in a manner set forth in the Award agreement) on the day that immediately follows the end of such six-month period or as soon as administratively practicable thereafter (without interest). Any payments of "nonqualified deferred compensation" under such Award that are, by their terms, payable more than six months following the Participant's "separation from service" shall be paid at the time or times such payments are otherwise scheduled to be made.

10.7 Limitations on Liability. Notwithstanding any other provisions of the Plan, no individual acting as a director, officer, other employee or agent of the Company will be liable to any Participant, former Participant, spouse, beneficiary, or any other person for any claim, loss, liability, or expense incurred in connection with the Plan or any Award, nor will such individual be personally liable with respect to the Plan because of any contract or other instrument he or she executes in his or her capacity as an Administrator, director, officer, other employee or agent of the Company. The Company will indemnify and hold harmless each director, officer, other employee and agent of the Company to whom any duty or power relating to the administration or interpretation of the Plan has been or will be granted or delegated, against any cost or expense (including attorneys' fees) or liability (including any sum paid in settlement of a claim with the Administrator's approval) arising out of any act or omission to act concerning this Plan unless arising out of such person's own fraud or bad faith.

10.8 Lock-Up Period. The Company may, at the request of any representative of the underwriters or otherwise, in connection with any registration of the offering of any securities of the Company under the Securities Act, prohibit Participants from, directly or indirectly, selling or otherwise transferring any shares of Common Stock or other securities of the Company during a period of up to one hundred eighty days following the effective date of a registration statement of the Company filed under the Securities Act.

10.9 Right of First Refusal.

(a) Before any shares of Common Stock held by a Participant or any permitted transferee (each, a "Holder") may be sold, pledged, assigned, hypothecated, transferred, or otherwise disposed of (each, a "Transfer"), the Company or its assignee(s) shall have a right of first refusal to purchase the shares

of Common Stock proposed to be Transferred on the terms and conditions set forth in this Section 10.9 (the "Right of First Refusal"). In the event that the Company's charter, bylaws and/or a stockholders' agreement applicable to the shares of Common Stock contain a right of first refusal with respect to the shares of Common Stock, such right of first refusal shall apply to the shares of Common Stock to the extent such provisions are more restrictive than the Right of First Refusal set forth in this Section 10.9 and the Right of First Refusal set forth in this Section 10.9 shall not in any way restrict the operation of the Company's charter, bylaws or the operation of any applicable stockholders' agreement.

(b) In the event any Holder desires to Transfer any shares of Common Stock, the Holder shall deliver to the Company a written notice (the "Notice") stating: (A) the Holder's *bona fide* intention to sell or otherwise Transfer such shares of Common Stock; (B) the name of each proposed purchaser or other transferee ("Proposed Transferee"); (C) the number of shares of Common Stock to be Transferred to each Proposed Transferee; and (D) the price for which the Holder proposes to Transfer the shares of Common Stock (the "Offered Price"), and the Holder shall offer such shares of Common Stock at the Offered Price to the Company or its assignee(s).

(c) Within twenty-five days after receipt of the Notice, the Company and/or its assignee(s) may elect in writing to purchase all, but not less than all, of the shares of Common Stock proposed to be Transferred to any one or more of the Proposed Transferees by delivery of a written exercise notice to the Holder (a "Company Notice"). The purchase price ("Purchase Price") for the shares of Common Stock repurchased under this Section 10.9 shall be the Offered Price.

(d) Payment of the Purchase Price shall be made, at the option of the Company or its assignee(s), in cash (by check or wire transfer), by cancellation of all or a portion of any outstanding indebtedness of the Holder to the Company (or, in the case of repurchase by an assignee, to the assignee), or by any combination thereof, within five days after delivery of the Company Notice or in the manner and at the times mutually agreed to by the Company and the Holder. Should the Offered Price specified in the Notice be payable in property other than cash, the Company or its assignee shall have the right to pay the purchase price in the form of cash equal in amount to the value of such property, as determined by the Administrator.

(e) If all or a portion of the shares of Common Stock proposed in the Notice to be Transferred are not purchased by the Company and/or its assignee(s) as provided in this Section 10.9, then the Holder may sell or otherwise Transfer such shares of Common Stock to that Proposed Transferee at the Offered Price or at a higher price; provided that such sale or other Transfer is consummated within sixty days after the date of the Notice; and provided, further, that any such sale or other Transfer is effected in accordance with any Applicable Laws and the Proposed Transferee agrees in writing that the provisions of this

Plan and the applicable Award Agreement and any other applicable agreements governing the shares of Common Stock to be Transferred shall continue to apply to the shares of Common Stock in the hands of such Proposed Transferee. If the shares of Common Stock described in the Notice are not Transferred to the Proposed Transferee within such sixty-day period, a new Notice shall be given to the Company, and the Company and/or its assignees shall again be offered the Right of First Refusal, as provided herein, before any shares of Common Stock held by the Holder may be sold or otherwise Transferred.

(f) Anything to the contrary contained in this Section 10.9 notwithstanding and to the extent permitted by the Administrator, the Transfer of any or all of the shares of Common Stock during a Participant's lifetime or upon a Participant's death by will or intestacy to the Participant's Immediate Family or a trust for the benefit of the Participant's Immediate Family shall be exempt from the Right of First Refusal. As used herein, "Immediate Family" shall mean spouse, lineal descendant or antecedent, father, mother, brother or sister or stepchild (whether or not adopted). In such case, the transferee or other recipient shall receive and hold the shares of Common Stock so Transferred subject to the provisions of this Plan (including the Right of First Refusal), the applicable Award Agreement and any other applicable agreements governing the shares of Common Stock to be Transferred, and there shall be no further Transfer of such shares of Common Stock except in accordance with the terms of this Section 10.9 (or otherwise as expressly provided under the Plan).

(g) The Right of First Refusal shall terminate as to all shares of Common Stock if the Company becomes a Publicly Listed Company upon such occurrence.

10.10 Data Privacy. As a condition of receipt of any Award, each Participant explicitly and unambiguously consents to the collection, use and transfer, in electronic or other form, of personal data as described in this paragraph by and among, as applicable, the Company and its subsidiaries and affiliates for the exclusive purpose of implementing, administering and managing the Participant's participation in the Plan. The Company and its subsidiaries and affiliates may hold certain personal information about a Participant, including but not limited to, the Participant's name, home address and telephone number, date of birth, social security or insurance number or other identification number, salary, nationality, job title(s), any shares of stock held in the Company or any of its subsidiaries and affiliates, details of all Awards, in each case, for the purpose of implementing, managing and administering the Plan and Awards (the "Data"). The Company and its subsidiaries and affiliates may transfer the Data amongst themselves as necessary for the purpose of implementation, administration and management of a Participant's participation in the Plan, and the Company and its subsidiaries and affiliates may each further transfer the Data to any third parties assisting the Company in the implementation, administration and management of the Plan. These recipients may be located in the Participant's country, or elsewhere, and the Participant's country may have different data privacy laws and protections than the recipients' country. Through acceptance of an Award, each Participant authorizes such recipients to receive, possess, use, retain and transfer the Data, in electronic or other form, for the purposes of implementing, administering and managing the Participant's

participation in the Plan, including any requisite transfer of such Data as may be required to a broker or other third party with whom the Company or the Participant may elect to deposit any shares of Common Stock. The Data related to a Participant will be held only as long as is necessary to implement, administer, and manage the Participant's participation in the Plan. A Participant may, at any time, view the Data held by the Company with respect to such Participant, request additional information about the storage and processing of the Data with respect to such Participant, recommend any necessary corrections to the Data with respect to the Participant or refuse or withdraw the consents herein in writing, in any case without cost, by contacting his or her local human resources representative. The Company may cancel Participant's ability to participate in the Plan and, in the Administrator's discretion, the Participant may forfeit any outstanding Awards if the Participant refuses or withdraws his or her consents as described herein. For more information on the consequences of refusal to consent or withdrawal of consent, Participants may contact their local human resources representative.

10.11 Severability. In the event any portion of the Plan or any action taken pursuant thereto shall be held illegal or invalid for any reason, the illegality or invalidity shall not affect the remaining parts of the Plan, and the Plan shall be construed and enforced as if the illegal or invalid provisions had not been included, and the illegal or invalid action shall be null and void.

10.12 Governing Documents. In the event of any contradiction between the Plan and any Award Agreement or any other written agreement between a Participant and the Company or any Subsidiary of the Company that has been approved by the Administrator, the terms of the Plan shall govern, unless it is expressly specified in such Award Agreement or other written document that a specific provision of the Plan shall not apply.

10.13 Submission to Jurisdiction; Waiver of Jury Trial. By accepting an Award, each Participant irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the courts of the State of California and of the United States of America, in each case located in the State of California, for any action arising out of or relating to the Plan (and agrees not to commence any litigation relating thereto except in such courts), and further agrees that service of any process, summons, notice or document by U.S. registered mail to the address contained in the records of the Company shall be effective service of process for any litigation brought against it in any such court. By accepting an Award, each Participant irrevocably and unconditionally waives any objection to the laying of venue of any litigation arising out of Plan or Award hereunder in the courts of the State of California or the United States of America, in each case located in the State of California, and further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such litigation brought in any such court has been brought in an inconvenient forum. By accepting an Award, each Participant irrevocably and unconditionally waives, to the fullest extent permitted by applicable law, any and all rights to trial by jury in connection with any litigation arising out of or relating to the Plan or any Award hereunder.

10.14 Governing Law. The provisions of the Plan and all Awards made hereunder shall be governed by and interpreted in accordance with the laws of the State of California, disregarding choice-of-law principles of the law of any state that would require the application of the laws of a jurisdiction other than such state.

10.15 Restrictions on Shares; Claw-back Provisions. Shares of Common Stock acquired in respect of Awards shall be subject to such terms and conditions as the Administrator shall determine, including, without limitation, restrictions on the transferability of shares of Common Stock, the right of the Company to repurchase shares of Common Stock, the right of the Company to require that shares of Common Stock be transferred in the event of certain transactions, tag-along rights, bring-along rights, redemption and co-sale rights and voting requirements. Such terms and conditions may be additional to those contained in the Plan and may, as determined by the Administrator, be contained in the applicable Award Agreement or in an exercise notice, stockholders' agreement or in such other agreement as the Administrator shall determine, in each case in a form determined by the Administrator. The issuance of such shares of Common Stock shall be conditioned on the Participant's consent to such terms and conditions and the Participant's entering into such agreement or agreements. All Awards (including any proceeds, gains or other economic benefit actually or constructively received by Participant upon any receipt or exercise of any Award or upon the receipt or resale of any shares of Common Stock underlying the Award) shall be subject to the provisions of any claw-back policy implemented by the Company, including, without limitation, any claw-back policy adopted to comply with the requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act and any rules or regulations promulgated thereunder, to the extent set forth in such claw-back policy and/or in the applicable Award Agreement.

10.16 Titles and Headings. The titles and headings of the Sections in the Plan are for convenience of reference only and, in the event of any conflict, the text of the Plan, rather than such titles or headings, shall control.

10.17 Conformity to Securities Laws. Participant acknowledges that the Plan is intended to conform to the extent necessary with all provisions of the Securities Act and the Exchange Act and any and all regulations and rules promulgated by the Securities and Exchange Commission thereunder, and state securities laws and regulations. Notwithstanding anything herein to the contrary, the Plan and all Awards granted hereunder shall be administered only in such a manner as to conform to such laws, rules and regulations. To the extent permitted by Applicable Laws, the Plan and all Award Agreements shall be deemed amended to the extent necessary to conform to such laws, rules and regulations.

11. Definitions. As used in the Plan, the following words and phrases shall have the following meanings:

11.1 "Administrator" means the Board or a Committee to the extent that the Board's powers or authority under the Plan have been delegated to such Committee.

11.2 "Applicable Laws" means the requirements relating to the administration of equity incentive plans under U.S. federal and state securities, tax and other applicable laws, rules and regulations, the applicable rules of any stock exchange or quotation system on which the Common Stock is listed or quoted and the applicable laws and rules of any foreign country or other jurisdiction where Awards are granted or issued under the Plan.

11.3 "Award" means, individually or collectively, a grant under the Plan of Options, Restricted Stock, Restricted Stock Units or Other Stock-Based Awards.

11.4 "Award Agreement" means a written agreement evidencing an Award, which agreements may be in electronic medium and shall contain such terms and conditions with respect to an Award as the Administrator shall determine, consistent with and subject to the terms and conditions of the Plan.

11.5 "Board" means the Board of Directors of the Company.

11.6 "Change in Control" means (i) a merger or consolidation of the Company with or into any other corporation or other entity or person, (ii) a sale, lease, exchange or other transfer in one transaction or a series of related transactions of all or substantially all of the Company's assets, or (iii) any other transaction, including the sale by the Company of new shares of its capital stock or a transfer of existing shares of capital stock of the Company, the result of which is that a third party that is not an affiliate of the Company or its stockholders (or a group of third parties not affiliated with the Company or its stockholders) immediately prior to such transaction acquires or holds capital stock of the Company representing a majority of the Company's outstanding voting power immediately following such transaction; provided that the following events shall not constitute a "Change in Control": (A) a transaction (other than a sale of all or substantially all of the Company's assets) in which the holders of the voting securities of the Company immediately prior to the merger or consolidation hold, directly or indirectly, at least a majority of the voting securities in the successor corporation or its parent immediately after the merger or consolidation; (B) a sale, lease, exchange or other transaction in one transaction or a series of related transactions of all or substantially all of the Company's assets to an affiliate of the Company; (C) an initial public offering of any of the Company's securities; (D) a reincorporation of the Company solely to change its jurisdiction; or (E) a transaction undertaken for the primary purpose of creating a holding company that will be owned in substantially the same proportion by the persons who held the Company's securities immediately before such transaction. Notwithstanding the foregoing, if a Change in Control would give rise to a payment or settlement event with respect to any Award that constitutes "nonqualified deferred compensation," the transaction or event constituting the Change in Control must also constitute a "change in control event" (as defined in Treasury Regulation §1.409A-3(i)(5)) in order to give rise to the payment or settlement event for such Award, to the extent required by Section 409A.

11.7 "Code" means the Internal Revenue Code of 1986, as amended, and the regulations issued thereunder.

11.8 "Committee" means one or more committees or subcommittees of the Board, which may be comprised of one or more directors and/or executive officers of the Company, in either case, to the extent permitted in accordance with Applicable Laws.

11.9 "Common Stock" means the common stock of the Company.

11.10 "Company" means Spruce Biosciences, Inc., a Delaware corporation, or any successor thereto. Except where the context otherwise requires, the term "Company" includes any of the Company's present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Code and any other business venture (including, without limitation, joint venture or limited liability company) in which the Company has a significant interest, as determined by the Administrator.

11.11 *"*Consultant*"* means any person, including any advisor, engaged by the Company or a parent or subsidiary of the Company to render services to such entity if: (i) the consultant or adviser renders *bona fide* services to the Company; (ii) the services rendered by the consultant or advisor are not in connection with the offer or sale of securities in a capital-raising transaction and do not directly or indirectly promote or maintain a market for the Company's securities; and (iii) the consultant or advisor is a natural person, or such other advisor or consultant as is approved by the Administrator.

11.12 *"*Designated Beneficiary*"* means the beneficiary or beneficiaries designated, in a manner determined by the Administrator, by a Participant to receive amounts due or exercise rights of the Participant in the event of the Participant's death or incapacity In the absence of an effective designation by a Participant, "Designated Beneficiary" shall mean the Participant's estate.

11.13 *"*Director*"* means a member of the Board.

11.14 "Disability" means a permanent and total disability within the meaning of Section 22(e)(3) of the Code, as it may be amended from time to time.

11.15 *"*Dividend Equivalents" means a right granted to a Participant pursuant to Section 6(d)(3) hereof to receive the equivalent value (in cash or shares of Common Stock) of dividends paid on shares of Common Stock.

11.16 "Employee" means any person, including officers and Directors, employed by the Company (within the meaning of Section 3401(c) of the Code) or any parent or subsidiary of the Company.

11.17 *"*Equity Restructuring" means, as determined by the Administrator, a non-reciprocal transaction between the Company and its stockholders, such as a stock dividend, stock split, spin-off or recapitalization through a large, nonrecurring cash dividend, that affects the shares of Common Stock (or other securities of the Company) or the share price of Common Stock (or other securities of the Company) and causes a change in the per share value of the Common Stock underlying outstanding Awards.

11.18 *"*Exchange Act*"* means the Securities Exchange Act of 1934, as amended.

11.19 *"*Fair Market Value" means, as of any date, the value of Stock determined as follows: (i) if the Common Stock is listed on any established stock exchange, its Fair Market Value shall be the closing sales price for such Common Stock as quoted on such exchange for such date, or if no sale occurred on such date, the first market trading day immediately prior to such date during which a sale occurred, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable; (ii) if the Common Stock is not traded on a stock exchange but is quoted on a national market or other quotation system, the last sales price on such date, or if no sales occurred on such date, then on the date immediately prior to such date on which sales prices are reported, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable; or (iii) in the absence of an established market for the Common Stock, the Fair Market Value thereof shall be determined by the Administrator in its sole discretion.

11.20 "Incentive Stock Option" means an "incentive stock option" as defined in Section 422 of the Code.

11.21 "Non-Qualified Stock Option" means an Option that is not intended to be or otherwise does not qualify as an Incentive Stock Option.

11.22 "Option" means an option to purchase Common Stock.

11.23 "Other Stock-Based Awards" means other Awards of shares of Common Stock, and other Awards that are valued in whole or in part by reference to, or are otherwise based on, shares of Common Stock or other property.

11.24 "Participant" means a Service Provider who has been granted an Award under the Plan.

11.25 "Plan" means this 2016 Equity Incentive Plan.

11.26 "Publicly Listed Company" means that the Company or its successor (i) is required to file periodic reports pursuant to Section 12 of the Exchange Act and (ii) the Common Stock is listed on one or more National Securities Exchanges (within the meaning of the Exchange Act) or is quoted on NASDAQ or a successor quotation system.

11.27 "Restricted Stock" means Common Stock awarded to a Participant pursuant to Section 6 hereof that is subject to certain vesting conditions and other restrictions.

11.28 "Restricted Stock Unit" means an unfunded, unsecured right to receive, on the applicable settlement date, one share of Common Stock or an amount in cash or other consideration determined by the Administrator equal to the value thereof as of such payment date, which right may be subject to certain vesting conditions and other restrictions.

11.29 "Section 409A" means Section 409A of the Code and all regulations, guidance, compliance programs and other interpretative authority thereunder.

11.30 "Securities Act" means the Securities Act of 1933, as amended from time to time.

11.31 "Service Provider" means an Employee, Consultant or Director.

11.32 "Termination of Service" means the date the Participant ceases to be a Service Provider.

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SPRUCE BIOSCIENCES, INC. 2016 EQUITY INCENTIVE PLAN

CALIFORNIA SUPPLEMENT

This supplement is intended to satisfy the requirements of Section 25102(o) of the California Corporations Code and the regulations issued thereunder ("Section 25102(o)"). Notwithstanding anything to the contrary contained in the Plan and except as otherwise determined by the Administrator, the provisions set forth in this supplement shall apply to all Awards granted under the Plan to a Participant who is a resident of the State of California on the date of grant (a "California Participant") and which are intended to be exempt from registration in California pursuant to Section 25102(o), and otherwise to the extent required to comply with applicable law (but only to such extent). Definitions in the Plan are applicable to this supplement.

1. Limitation On Securities Issuable Under Plan. The amount of securities issued pursuant to the Plan shall not exceed the amounts permitted under Section 260.140.45 of the California code of regulations to the extent applicable.

2. Additional Limitations For Grants. The terms of all Awards shall comply, to the extent applicable, with Sections 260.140.41 and 260.140.42 of the California Code of Regulations.

3. Additional Requirement To Provide Information To California Participants. The Company shall provide to each California Participant, not less frequently than annually, copies of annual financial statements (which need not be audited). The Company shall not be required to provide such statements to key persons whose duties in connection with the Company assure their access to equivalent information. In addition, this information requirement shall not apply to any plan or agreement that complies with all conditions of Rule 701 of the Securities Act ("Rule 701"); provided that for purposes of determining such compliance, any registered domestic partner shall be considered a "family member" as that term is defined in Rule 701.

* * * * *

SPRUCE BIOSCIENCES, INC.

2016 EQUITY INCENTIVE PLAN

STOCK OPTION GRANT NOTICE AND STOCK OPTION AGREEMENT

Spruce Biosciences, Inc. (the "Company"), pursuant to its 2016 Equity Incentive Plan (the "Plan"), hereby grants to the participant set forth below ("Participant"), an option (the "Option") to purchase the number of shares of the Company's Common Stock (referred to herein as "Shares") set forth below. This Option is subject to all of the terms and conditions as set forth herein and in the Stock Option Agreement attached hereto as Exhibit A (the "Stock Option Agreement") and the Plan, each of which is incorporated herein by reference. Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings in this Stock Option Grant Notice and the Stock Option Agreement.

Participant:	_____
Grant Date:	_____
Vesting Commencement Date:	_____
Exercise Price per Share:	$ _____
Total Exercise Price:	$ _____
Total Number of Shares Subject to Option:	_____
Expiration Date:	_____
Type of Option:	☐ Incentive Stock Option ☐ Non-Qualified Stock Option
Vesting Schedule:	[The Option shall vest and become exercisable as to 25% of the total number of Shares subject to the Option on the first anniversary of the Vesting Commencement Date and as to 1/48th of the total number of Shares subject to the Option on each monthly anniversary thereafter, so that all of the Shares subject to the Option shall be fully vested and exercisable on the fourth anniversary of the Vesting Commencement Date, subject to Participant not experiencing a Termination of Service through each such vesting date.]

By his or her signature and the Company's signature below, Participant agrees to be bound by the terms and conditions of the Plan, the Stock Option Agreement and this Grant Notice. Participant has reviewed the Stock Option Agreement, the Plan and this Grant Notice in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Grant Notice and fully understands all provisions of this Grant Notice, the Stock Option Agreement and the Plan. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator of the Plan upon any questions arising under the Plan or the Option.

SPRUCE BIOSCIENCES, INC.:

By: _____
Name: _____
Title: _____

PARTICIPANT:

By: _____
Name: _____

EXHIBIT A

TO STOCK OPTION GRANT NOTICE

STOCK OPTION AGREEMENT

Pursuant to the Stock Option Grant Notice ("Grant Notice") to which this Stock Option Agreement (this "Agreement") is attached, Spruce Biosciences, Inc. (the "Company") has granted to Participant an Option under the Company's 2016 Equity Incentive Plan (the "Plan") to purchase the number of Shares indicated in the Grant Notice.

1. General

1.1 Defined Terms. Capitalized terms not specifically defined herein shall have the meanings specified in the Plan and the Grant Notice.

1.2 Incorporation of Terms of Plan. The Option is subject to the terms and conditions of the Plan which are incorporated herein by reference. In the event of a conflict between the terms of the Agreement and the Plan, the terms of the Plan shall control.

1.3 Grant of Option. In consideration of Participant's past and/or continued employment with or service to the Company or a parent or subsidiary and for other good and valuable consideration, effective as of the grant date set forth in the Grant Notice (the "Grant Date"), the Company irrevocably grants to Participant an Option to purchase any part or all of an aggregate of the number of Shares set forth in the Grant Notice, upon the terms and conditions set forth in the Plan and this Agreement. Unless designated as a Non-Qualified Stock Option in the Grant Notice, the Option shall be an Incentive Stock Option to the maximum extent permitted by law.

2. Period of Exercisability

2.1 Vesting; Commencement of Exercisability.

(a) Subject to Sections 2.1(b) and 2.3 below, the Option shall become vested and exercisable in such amounts and at such times as are set forth in the vesting schedule in the Grant Notice (the "***Vesting Schedule***").

(b) Unless otherwise determined by the Administrator, any portion of the Option that has not become vested and exercisable on or prior to the date of Participant's Termination of Service shall be forfeited on the date of Participant's Termination of Service and shall not thereafter become vested or exercisable.

2.2 Duration of Exercisability. The installments provided for in the Vesting Schedule are cumulative. Each such installment which becomes vested and exercisable pursuant to the Vesting Schedule shall remain vested and exercisable until it becomes unexercisable under Section 2.3 below or pursuant to the terms of the Plan. Once the Option becomes unexercisable, it shall be forfeited immediately.

2.3 Expiration of Option. The Option may not be exercised to any extent by anyone after the first to occur of the following events:

(a) The Expiration Date set forth in the Grant Notice;

(b) The expiration of three months following the date of Participant's Termination of Service, unless such Termination of Service occurs by reason of Participant's death, Disability or Cause;

(c) The expiration of one year following the date of Participant's Termination of Service by reason of Participant's death or Disability; or

(d) The date of Participant's Termination of Service for Cause.

Participant acknowledges that an Incentive Stock Option exercised more than three (3) months after Participant's Termination of Service as an Employee, other than by reason of death or Disability, will be taxed as a Non-Qualified Stock Option.

2.4 Special Tax Consequences. Participant acknowledges that, to the extent that the aggregate Fair Market Value (determined as of the time the Option is granted) of all Shares with respect to which Incentive Stock Options, including the Option, are first exercisable for the first time by Participant in any calendar year exceeds $100,000 (or such other limitation as imposed by Section 422(d) of the Code), the Option and such other options shall be treated as not qualifying under Section 422 of the Code but rather shall be considered Non-Qualified Stock Options. Participant further acknowledges that the rule set forth in the preceding sentence shall be applied by taking Options and other "incentive stock options" into account in the order in which they were granted.

3. Exercise of Option

3.1 Person Eligible to Exercise. Except as may be otherwise provided by the Administrator, during the lifetime of Participant, only Participant may exercise the Option or any portion thereof. After the death of Participant, any exercisable portion of the Option may, prior to the time when the Option becomes unexercisable under Section 2.3, be exercised by Participant's personal representative or by any person empowered to do so under the deceased Participant's will or under the then applicable laws of descent and distribution.

3.2 Partial Exercise. Any exercisable portion of the Option or the entire Option, if then wholly exercisable, may be exercised in whole or in part at any time prior to the time when the Option or portion thereof becomes unexercisable under Section 2.3.

3.3 Manner of Exercise. The Option, or any exercisable portion thereof, may be exercised solely by delivery to the Secretary of the Company or the Secretary's office, or such other place as may be determined by the Administrator, of all of the following prior to the time when the Option or such portion thereof becomes unexercisable under Section 2.3 above:

(a) An exercise notice in substantially in the form attached as Exhibit B to the Grant Notice (or such other form as is prescribed by the Administrator) (the "Exercise Notice") in writing signed by Participant or any other person then entitled to exercise the Option or portion thereof, stating that the Option or portion thereof is thereby exercised, such notice complying with all Applicable Laws established by the Administrator;

(b) Subject to Section 5.6 of the Plan:

(i) Full payment (in cash or by check) for the Shares with respect to which the Option or portion thereof is exercised; or

(ii) With the consent of the Administrator, by delivery of Shares then issuable upon exercise of the Option having a Fair Market Value on the date of delivery equal to the aggregate exercise price of the Option or exercised portion thereof; or

(iii) On and after the date the Company becomes a Publicly Listed Company, through the (A) delivery by Participant to the Company of an irrevocable and unconditional undertaking by a broker acceptable to the Company to deliver promptly to the Company sufficient funds to pay the exercise price or (B) delivery by Participant to the Company of a copy of irrevocable and unconditional instructions to a broker acceptable to the Company to deliver promptly to the Company cash or a check sufficient to pay the exercise price; provided that payment is then made to the Company at such time as may be required by the Administrator; or

(iv) With the consent of the Administrator, any other method of payment permitted under the terms of the Plan; or

(v) Subject to any Applicable Laws, any combination of the consideration allowed under the foregoing paragraphs;

(c) The receipt by the Company of full payment for any applicable withholding tax in cash or by check or in the form of consideration permitted by the Administrator, which, following the date the Company becomes a Publicly Listed Company shall include the method provided for in Section 5.6(a) of the Plan;

(d) If the Company is a not a Publicly Listed Company, the Investment Representation Statement in the form attached as Exhibit B-1 to the Exercise Notice executed by Participant; and

(e) In the event the Option or portion thereof shall be exercised pursuant to Section 3.1 above by any person or persons other than Participant, appropriate proof of the right of such person or persons to exercise the Option.

4. Other Provisions

4.1 Restrictive Legends and Stop-Transfer Orders.

(a) Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(b) The Company shall not be required: (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement, or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such shares shall have been so transferred.

4.2 Notices. Any notice to be given under the terms of this Agreement to the Company shall be addressed to the Company at its principal executive offices in care of the Secretary of the Company, and any notice to be given to Participant shall be addressed to Participant at the most recent address for Participant shown in the Company's records. By a notice given pursuant to this Section 4.2, either party may hereafter designate a different address for notices to be given to that party. Any notice which is required to be given to Participant shall, if Participant is then deceased, be given to the person entitled to exercise his or her Option by written notice under this Section 4.2. Any notice shall be deemed duly given when sent via email or when sent by certified mail (return receipt requested) and deposited (with postage prepaid) in a post office or branch post office regularly maintained by the United States Postal Service.

4.3 Titles. Titles are provided herein for convenience only and are not to serve as a basis for interpretation or construction of this Agreement.

4.4 Submission to Jurisdiction; Waiver of Jury Trial. By accepting this Option, the Participant irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the courts of the State of California and of the United States of America, in each case located in the State of California, for any action arising out of or relating to the Plan and this Option (and agrees not to commence any litigation relating thereto except in such courts), and further agrees that service of any process, summons, notice or document by U.S. registered mail to the address contained in the records of the Company shall be effective service of process for any litigation brought against it in any such court. By accepting this Option, the Participant irrevocably and unconditionally waives any objection to the laying of venue of any litigation arising out of Plan or the Option in the courts of the State of California or the United States of America, in each case located in the State of California, and further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such litigation brought in any such court has been brought in an inconvenient forum. By accepting this Option, the Participant irrevocably and unconditionally waives, to the fullest extent permitted by applicable law, any and all rights to trial by jury in connection with any litigation arising out of or relating to the Plan or the Option.

4.5 Governing Law; Severability. This Agreement and the Exercise Notice shall be administered, interpreted and enforced under the laws of the State of Delaware, without regard to the conflicts of law principles thereof. Should any provision of this Agreement be determined by a court of law to be illegal or unenforceable, the other provisions shall nevertheless remain effective and shall remain enforceable.

4.6 Conformity to Securities Laws. Participant acknowledges that the Plan is intended to conform to the extent necessary with all provisions of the Securities Act and the Exchange Act and any and all regulations and rules promulgated by the Securities and Exchange Commission thereunder, and state securities laws and regulations. Notwithstanding anything herein to the contrary, the Plan shall be administered, and the Option is granted and may be exercised, only in such a manner as to conform to such laws, rules and regulations. To the extent permitted by Applicable Laws, the Plan and this Agreement shall be deemed amended to the extent necessary to conform to such laws, rules and regulations.

4.7 Successors and Assigns. The Company may assign any of its rights under this Agreement and the Exercise Notice to single or multiple assignees, and this Agreement shall inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer herein set forth, this Agreement shall be binding upon Participant and his or her heirs, executors, administrators, successors and assigns.

4.8 Entire Agreement. The Plan and this Agreement (including all Exhibits hereto) constitute the entire agreement of the parties and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof.

* * * * *

EXHIBIT B

TO STOCK OPTION GRANT NOTICE

FORM OF EXERCISE NOTICE

Effective as of today, _____, _____, the undersigned ("Participant") hereby elects to exercise Participant's option to purchase _____ Shares of Spruce Biosciences, Inc. (the "Company") under and pursuant to the Company's 2016 Equity Incentive Plan (the "Plan") and the Stock Option Grant Notice and Stock Option Agreement dated _____, _____, (the "Option Agreement"). Capitalized terms used herein without definition shall have the meanings given in the Option Agreement.

Grant Date:	_____
Number of Shares as to which Option is Exercised:	_____
Exercise Price per Share:	$ _____
Total Exercise Price:	$ _____
Certificate to be issued or book entry to be made in name of:	_____
Cash Payment delivered herewith:	_____ (Representing the full Exercise Price for the Shares, as well as any applicable withholding tax)

Type of Option: ☐ Incentive Stock Option ☐ Non-Qualified Stock Option

1. Representations of Participant. Participant acknowledges that Participant has received, read and understood the Plan and the Option Agreement. Participant agrees to abide by and be bound by their terms and conditions.

2. Tax Consultation. Participant understands that Participant may suffer adverse tax consequences as a result of Participant's purchase or disposition of the Shares. Participant represents that Participant has consulted with any tax consultants Participant deems advisable in connection with the purchase or disposition of the Shares and that Participant is not relying on the Company for any tax advice. Participant is relying solely on such advisors and not on any statements or representations of the Company or any of its agents. Participant understands that Participant (and not the Company) shall be responsible for Participant's tax liability that may arise as a result of this investment or the transactions contemplated by this Agreement.

3. Restrictive Legends and Stop-Transfer Orders.

3.1 Legends. Participant understands and agrees that the Company shall cause any certificates issued evidencing the Shares to have the legends set forth below or legends substantially equivalent thereto, together with any other legends that may be required by state or federal securities laws:

THE SHARES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED ("ACT"), NOR HAVE THEY BEEN REGISTERED OR

QUALIFIED UNDER THE SECURITIES LAWS OF ANY STATE. NO TRANSFER OF SUCH SECURITIES WILL BE PERMITTED UNLESS A REGISTRATION STATEMENT UNDER THE ACT IS IN EFFECT AS TO SUCH TRANSFER, THE TRANSFER IS MADE IN ACCORDANCE WITH RULE 144 UNDER THE ACT, OR IN THE OPINION OF COUNSEL (WHICH MAY BE COUNSEL FOR THE COMPANY) REGISTRATION UNDER THE ACT IS UNNECESSARY IN ORDER FOR SUCH TRANSFER TO COMPLY WITH THE ACT AND WITH APPLICABLE STATE SECURITIES LAWS.

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON TRANSFER AND A RIGHT OF FIRST REFUSAL HELD BY THE ISSUER OR ITS ASSIGNEE(S) AS SET FORTH IN THE PLAN PURSUANT TO WHICH THESE SHARES WERE ISSUED, A COPY OF WHICH MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. SUCH TRANSFER RESTRICTIONS AND RIGHT OF FIRST REFUSAL ARE BINDING ON TRANSFEREES OF THESE SHARES.

3.2 Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

3.3 The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

4. Notices. Any notice required or permitted hereunder shall be given in accordance with the provisions set forth in Section 4.2 of the Option Agreement.

5. Further Instruments. Participant hereby agrees to execute such further instruments, including, without limitation, the Investment Representation Statement in the form attached hereto as Exhibit B-1, and to take such further action as the Company determines are reasonably necessary to carry out the purposes and intent of this Agreement.

6. Entire Agreement. The Plan, the Investment Representation Statement in the form attached hereto as Exhibit B-1 and the Option Agreement are incorporated herein by reference. This Agreement, the Plan, the Investment Representation Statement in the form attached hereto as Exhibit B-1 and the Option Agreement constitute the entire agreement of the parties and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof.

ACCEPTED BY:
SPRUCE BIOSCIENCES, INC.:

By: _____
Print Name: _____

SUBMITTED BY:
PARTICIPANT:

By: _____
Print Name: _____
Address:

_____

_____

EXHIBIT B-1

TO EXERCISE NOTICE

INVESTMENT REPRESENTATION STATEMENT

PARTICIPANT :

COMPANY : SPRUCE BIOSCIENCES, INC.

SECURITY : COMMON STOCK

AMOUNT :

DATE :

In connection with the purchase of the above-listed shares of Common Stock (the "Securities") of Spruce Biosciences, Inc. (the "Company"), the undersigned ("Participant") represents to the Company the following:

(b) Participant is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Securities. Participant is acquiring these Securities for investment for Participant's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the United States Securities Act of 1933, as amended (the "Securities Act").

(c) Participant acknowledges and understands that the Securities constitute "restricted securities" under the Securities Act and have not been registered under the Securities Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Participant's investment intent as expressed herein. In this connection, Participant understands that, in the view of the United States Securities and Exchange Commission, the statutory basis for such exemption may be unavailable if Participant's representation was predicated solely upon a present intention to hold these Securities for the minimum capital gains period specified under tax statutes, for a deferred sale, for or until an increase or decrease in the market price of the Securities, or for a period of one year or any other fixed period in the future. Participant further understands that the Securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Participant further acknowledges and understands that the Company is under no obligation to register the Securities. Participant understands that any certificate evidencing the Securities will be imprinted with a legend which prohibits the transfer of the Securities unless they are registered or such registration is not required in the opinion of counsel satisfactory to the Company and any other legend required under applicable securities laws or agreements.

(d) Participant is familiar with the provisions of Rule 701 and Rule 144, each promulgated under the Securities Act, which, in substance, permit limited public resale of "restricted securities" acquired, directly or indirectly from the issuer thereof, in a non-public offering subject to the satisfaction of certain conditions. Rule 701 provides that if the issuer qualifies under Rule 701 at the time of the grant of the Option to Participant, the exercise will be exempt from registration under the Securities Act. In the event the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the United States Securities Exchange Act of 1934, ninety (90) days thereafter (or such longer period as any market stand-off agreement may require) the Securities exempt under Rule 701 may under present law be resold, subject to the satisfaction of certain of the conditions specified by Rule 144, including: (1) the resale

being made through a broker in an unsolicited "broker's transaction" or in transactions directly with a market maker (as said term is defined under the United States Securities Exchange Act of 1934); and, in the case of an affiliate, (2) the availability of certain public information about the Company, (3) the amount of Securities being sold during any three (3) month period not exceeding the limitations specified in Rule 144(e), and (4) the timely filing of a Form 144, if applicable.

In the event that the Company does not qualify under Rule 701 at the time of grant of the Option, then the Securities may be resold in certain limited circumstances subject to the provisions of Rule 144, which, effective as of February 15, 2008, requires the resale to occur not less than six months, or, in the event the Company is not subject to the reporting requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, not less than one year, after the later of the date the Securities were sold by the Company or the date the Securities were sold by an affiliate of the Company, within the meaning of Rule 144; and, in the case of acquisition of the Securities by an affiliate, the satisfaction of the conditions set forth in sections (1), (2), (3) and (4) of the paragraph immediately above or, in the case of a non-affiliate who subsequently hold the Securities less than one year, the satisfaction of the conditions set forth in section (2) of the paragraph immediately above.

(e) Participant further understands that in the event all of the applicable requirements of Rule 701 or 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rules 144 and 701 are not exclusive, the Staff of the United States Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rules 144 or 701 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk. Participant understands that no assurances can be given that any such other registration exemption will be available in such event.

Signature of Participant:

_____

Date: _____, _____

SPRUCE BIOSCIENCES, INC.

2016 EQUITY INCENTIVE PLAN

EARLY EXERCISE STOCK OPTION GRANT NOTICE AND

STOCK OPTION AGREEMENT

Spruce Biosciences, Inc. (the "***Company***"), pursuant to its 2016 Equity Incentive Plan (the "***Plan***"), hereby grants to the participant set forth below ("***Participant***"), an option (the "***Option***") to purchase the number of shares of the Company's Common Stock (referred to herein as "***Shares***") set forth below. This Option is subject to all of the terms and conditions as set forth herein and in the Stock Option Agreement attached hereto as Exhibit A (the "***Stock Option Agreement***") and the Plan, each of which is incorporated herein by reference. Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings in this Stock Option Grant Notice and the Stock Option Agreement.

Participant:	
Grant Date:	
Vesting Commencement Date:	
Exercise Price per Share:	$
Total Exercise Price:	$
Total Number of Shares Subject to Option:	
Expiration Date:	
Type of Option:	Non-Qualified Stock Option
Vesting Schedule:	[The Option shall vest and become exercisable as to 25% of the total number of Shares subject to the Option on the first anniversary of the Vesting Commencement Date and as to 1/48th of the total number of Shares subject to the Option on each monthly anniversary thereafter, so that all of the Shares subject to the Option shall be fully vested and exercisable on the fourth anniversary of the Vesting Commencement Date, subject to Participant not experiencing a Termination of Service through each such vesting date.]

By his or her signature and the Company's signature below, Participant agrees to be bound by the terms and conditions of the Plan, the Stock Option Agreement and this Grant Notice. Participant has reviewed the Stock Option Agreement, the Plan and this Grant Notice in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Grant Notice and fully understands all provisions of this Grant Notice, the Stock Option Agreement and the Plan. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator of the Plan upon any questions arising under the Plan or the Option.

SPRUCE BIOSCIENCES, INC.:

By: _____
Name: _____
Title: _____

PARTICIPANT:

By: _____
Name: _____

EXHIBIT A

TO STOCK OPTION GRANT NOTICE

STOCK OPTION AGREEMENT

Pursuant to the Stock Option Grant Notice ("***Grant Notice***") to which this Stock Option Agreement (this "***Agreement***") is attached, Spruce Biosciences, Inc. (the "***Company***") has granted to Participant an Option under the Company's 2016 Equity Incentive Plan (the "***Plan***") to purchase the number of Shares indicated in the Grant Notice.

ARTICLE I

GENERAL

1.1 Defined Terms. Capitalized terms not specifically defined herein shall have the meanings specified in the Plan and the Grant Notice.

1.2 Incorporation of Terms of Plan. The Option is subject to the terms and conditions of the Plan which are incorporated herein by reference. In the event of a conflict between the terms of the Agreement and the Plan, the terms of the Plan shall control.

1.3 Grant of Option. In consideration of Participant's past and/or continued employment with or service to the Company or a parent or subsidiary and for other good and valuable consideration, effective as of the grant date set forth in the Grant Notice (the "***Grant Date***"), the Company irrevocably grants to Participant an Option to purchase any part or all of an aggregate of the number of Shares set forth in the Grant Notice, upon the terms and conditions set forth in the Plan and this Agreement.

ARTICLE II

PERIOD OF EXERCISABILITY

2.1 Vesting; Exercisability.

(a) Subject to Sections 2.1(b) below, the Option shall become vested in such amounts and at such times as are set forth in the vesting schedule in the Grant Notice (the "***Vesting Schedule***"). The installments provided for in the Vesting Schedule are cumulative.

(b) Unless otherwise determined by the Administrator, any portion of the Option that has not become vested on or prior to the date of Participant's Termination of Service shall be forfeited on the date of Participant's Termination of Service and shall not thereafter become vested.

(c) Any portion of the Option or the entire Option may be exercised in whole or in part at any time prior to the time when the Option or portion thereof becomes unexercisable under Section 2.2, provided that each unvested Share with respect to which the Option is exercised (a "***Restricted Share***") shall be subject to the Company Repurchase Right (as defined below) for so long as the Option shall remain unvested with respect to such Share under the terms of this Agreement. The Restricted Shares shall be released from the Company Repurchase Right as set forth in Section 4.1(d). For the avoidance of doubt, all Shares with respect to which the Option is exercised shall at all times be assumed to be unvested Shares to the fullest extent possible under the terms of this Agreement, unless otherwise provided by the Administrator.

2.2 Expiration of Option. The Option may not be exercised to any extent by anyone after the first to occur of the following events:

(a) The Expiration Date set forth in the Grant Notice;

(b) The expiration of three months following the date of Participant's Termination of Service, unless such Termination of Service occurs by reason of Participant's death, Disability or Cause;

(c) The expiration of one year following the date of Participant's Termination of Service by reason of Participant's death or Disability;

(d) The date of Participant's Termination of Service for Cause; or

(e) With respect to any unvested portion of the Option, the date of Participant's Termination of Service for any reason.

ARTICLE III

EXERCISE OF OPTION

3.1 Person Eligible to Exercise. Except as may be otherwise provided by the Administrator, during the lifetime of Participant, only Participant may exercise the Option or any portion thereof. After the death of Participant, any exercisable portion of the Option may, prior to the time when the Option becomes unexercisable under Section 2.2, be exercised by Participant's personal representative or by any person empowered to do so under the deceased Participant's will or under the then applicable laws of descent and distribution.

3.2 Manner of Exercise. The Option, or any portion thereof, may be exercised solely by delivery to the Secretary of the Company or the Secretary's office, or such other place as may be determined by the Administrator, of all of the following prior to the time when the Option or such portion thereof becomes unexercisable under Section 2.2 above:

(a) An exercise notice in substantially in the form attached as Exhibit B to the Grant Notice (or such other form as is prescribed by the Administrator) (the "***Exercise Notice***") in writing signed by Participant or any other person then entitled to exercise the Option or portion thereof, stating that the Option or portion thereof is thereby exercised, such notice complying with all Applicable Laws established by the Administrator;

(b) Subject to Section 5(f) of the Plan:

(i) Full payment (in cash or by check) for the Shares with respect to which the Option or portion thereof is exercised; or

(ii) With the consent of the Administrator, by delivery of Shares then issuable upon exercise of the Option having a Fair Market Value on the date of delivery equal to the aggregate exercise price of the Option or exercised portion thereof; or

(iii) On and after the date the Company becomes a Publicly Listed Company, through the (A) delivery by Participant to the Company of an irrevocable and unconditional undertaking by a broker acceptable to the Company to deliver promptly to the Company sufficient funds to pay the exercise price or (B) delivery by Participant to the Company of a copy of irrevocable and unconditional instructions to a broker acceptable to the Company to deliver promptly to the Company cash or a check sufficient to pay the exercise price; provided that payment is then made to the Company at such time as may be required by the Administrator; or

(iv) With the consent of the Administrator, any other method of payment permitted under the terms of the Plan; or

(v) Subject to any Applicable Laws, any combination of the consideration allowed under the foregoing paragraphs;

(c) The receipt by the Company of full payment for any applicable withholding tax in cash or by check or in the form of consideration permitted by the Administrator, which, following the date the Company becomes a Publicly Listed Company shall include the method provided for in Section 5(f)(i) of the Plan;

(d) If the Company is a not a Publicly Listed Company, the Investment Representation Statement in the form attached as Exhibit B-1 to the Exercise Notice executed by Participant;

(e) In the event the Option or portion thereof shall be exercised pursuant to Section 3.1 above by any person or persons other than Participant, appropriate proof of the right of such person or persons to exercise the Option; and

(f) In the event the Option or portion thereof shall be exercised as to Restricted Shares the following (collectively, the "***Additional Documents***"):

(i) any share certificate(s) representing such Restricted Shares; and

(ii) the stock assignment duly endorsed in blank, attached as Exhibit C to the Grant Notice (the "***Stock Assignment***"), executed by Participant; and

(iii) the Joint Escrow Instructions of the Company and Participant attached as Exhibit D to the Grant Notice (the "***Joint Escrow Instructions***"), executed by Participant; and

(iv) if Participant has a spouse or registered domestic partner, the Consent of Spouse or Registered Domestic Partner attached as Exhibit E to the Grant Notice, executed by Participant's spouse or registered domestic partner.

ARTICLE IV

RESTRICTED SHARES

4.1 Company Repurchase Right.

(a) Upon Participant's Termination of Service for any reason, the Company shall have the right and option to repurchase all of the Restricted Shares from Participant, or Participant's transferee or legal representative, as the case may be, for a purchase price equal to the price per Share paid for such Restricted Shares (the "***Company Repurchase Right***").

(b) The Company may exercise the Company Repurchase Right by delivering, personally or by registered mail, to Participant (or his or her transferee or legal representative, as the case may be), within ninety (90) days of the date of Participant's Termination of Service, a notice in writing indicating the Company's intention to exercise the Company Repurchase Right and setting forth a date for closing not later than thirty (30) days from the mailing of such notice. The closing shall take place at the Company's office. At the closing, the holder of any certificates for the Restricted Shares shall deliver the stock certificate or certificates evidencing the Restricted Shares, and the Company shall deliver the purchase price therefore. At its option, the Company may elect to make payment for the Restricted Shares to a bank selected by the Company. The Company shall avail itself of this option by a notice in writing to Participant stating the name and address of the bank, date of closing, and waiving the closing at the Company's office.

(c) If the Company does not elect to exercise the Company Repurchase Right by giving the requisite notice within ninety (90) days following the date of Participant's Termination of Service, the Company Repurchase Right shall terminate.

(d) The Restricted Shares shall be released from the Company Repurchase Right upon vesting of the Option with respect to such Shares in accordance with the terms of this Agreement. For the avoidance of doubt, all Restricted Shares shall at all times be assumed to be unvested Shares to the fullest extent possible under the terms of this Agreement, unless otherwise provided by the Administrator. Fractional Shares shall be rounded down to the nearest whole share.

4.2 Escrow.

(a) Participant hereby authorizes and directs the Secretary of the Company, or such other person designated by the Administrator from time to time, to transfer the Restricted Shares as to which the Company Repurchase Right has been exercised from Participant (or his or her transferee or legal representative, as the case may be) to the Company.

(b) To insure the availability for delivery of the Restricted Shares upon repurchase by the Company pursuant to the Company Repurchase Right, Participant appoints the Secretary of the Company, or such other person designated by the Administrator from time to time as escrow agent, as its attorney-in-fact to sell, assign and transfer unto the Company, such Restricted Shares, if any, repurchased by the Company pursuant to the Company Repurchase Right and shall, upon execution of the applicable Exercise Notice, deliver and deposit with the Secretary of the Company, or such other person designated by the Administrator from time to time, any share certificate(s) representing the Restricted Shares, together with the Stock Assignment. The Restricted Shares and Stock Assignment shall be held by the Secretary, or such other person designated by the Administrator from time to time, in escrow, pursuant to the Joint Escrow Instructions, until the Company exercises the Company Repurchase Right, until such Restricted Shares are released from the Company Repurchase Right as set forth in Section 4.1(d) or until such time as this Agreement no longer is in effect. Upon release of the Restricted Shares from the Company's Repurchase Right, the escrow agent shall as soon as reasonably practicable deliver to Participant any certificate or certificates representing such Shares in the escrow agent's possession belonging to Participant, and the escrow agent shall be discharged of all further obligations hereunder.

(c) The Company, or its designee, shall not be liable for any act it may do or omit to do with respect to holding the Restricted Shares in escrow and while acting in good faith and in the exercise of its judgment.

4.3 Transferability of Restricted Shares. The Restricted Shares may not be sold, assigned, transferred, pledged or otherwise encumbered, either voluntarily or by operation of law, except by will or the laws of descent and distribution. Any transferee of the Restricted Shares shall hold such Shares subject to all of the provisions hereof and the Exercise Notice and Additional Documents executed by Purchaser with respect to such Shares. Any transfer or attempted transfer of any of the Restricted Shares not in accordance with the terms of this Agreement shall be void and the Company may enforce the terms of this Agreement by stop transfer instructions or similar actions by the Company and its agents or designees.

4.4 Rights as a Stockholder. Except as otherwise provided herein, upon exercise of the Option, Participant shall have all the rights of a stockholder with respect to the Restricted Shares, including the right to receive any cash or stock dividends or other distributions paid to or made with respect to the Restricted Shares, subject to the restrictions described in the following sentence, which restrictions shall lapse when the Restricted Shares are released from the Company Repurchase Right as set forth in Section 4.1(d). Unless otherwise provided by the Administrator, if any dividends or distributions are paid in shares, or consist of a dividend or distribution to holders of Common Stock of property other than an ordinary cash dividend, the shares or other property will be subject to same restrictions on transferability as the Restricted Shares with respect to which they were paid and shall automatically be forfeited to the Company for no consideration in the event the Company exercises the Company Repurchase Right for the Restricted Shares with respect to which they were paid. In no event shall a dividend or distribution be paid with respect to Restricted Shares later than the end of the calendar year in which the dividends are paid to holders of Common Stock or, if later, the 15th day of the third month following the later of (i) the date the dividends are paid to holders of Common Stock and (ii) the date the Restricted Shares with respect to which the dividends are paid vest.

4.5 Section 83(b) Election for Restricted Shares. Participant acknowledges that, with respect to the exercise of the Option for Restricted Shares, unless an election is filed by Participant with the Internal Revenue Service and, if necessary, the proper state taxing authorities, within thirty (30) days of the purchase of the Shares, electing pursuant to Section 83(b) of the Code (and similar state tax provisions if applicable) to be taxed currently on any difference between the purchase price of the Shares and their fair market value on the date of purchase, there will be a recognition of taxable income to the Purchaser, measured by the excess, if any, of the fair market value of the Shares, at the time the Company Repurchase Right lapses over the purchase price for the Shares. Participant represents that Participant has consulted any tax consultant(s) Participant deems advisable in connection with the purchase of the Shares or the filing of the election under Section 83(b) of the Code and similar tax provisions.

PARTICIPANT ACKNOWLEDGES THAT IT IS PARTICIPANT'S SOLE RESPONSIBILITY AND NOT THE COMPANY'S TO FILE TIMELY THE ELECTION UNDER SECTION 83(B) OF THE CODE, EVEN IF PARTICIPANT REQUESTS THE COMPANY OR ITS REPRESENTATIVE TO MAKE THIS FILING ON PARTICIPANT'S BEHALF.

ARTICLE V

OTHER PROVISIONS

5.1 Restrictive Legends and Stop-Transfer Orders.

(a) Any share certificate or certificates evidencing the Shares purchased hereunder shall be endorsed with any legends that may be required by state or federal securities laws and, with regard to Restricted Shares, shall bear such other legends as shall be determined by the Administrator.

(b) Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(c) The Company shall not be required: (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement, or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such shares shall have been so transferred.

5.2 Notices. Any notice to be given under the terms of this Agreement to the Company shall be addressed to the Company at its principal executive offices in care of the Secretary of the Company, and any notice to be given to Participant shall be addressed to Participant at the most recent address for Participant shown in the Company's records. By a notice given pursuant to this Section 5.2, either party may hereafter designate a different address for notices to be given to that party. Any notice which is required to be given to Participant shall, if Participant is then deceased, be given to the person entitled to exercise his or her Option by written notice under this Section 5.2. Any notice shall be deemed duly given when sent via email or when sent by certified mail (return receipt requested) and deposited (with postage prepaid) in a post office or branch post office regularly maintained by the United States Postal Service.

5.3 Titles. Titles are provided herein for convenience only and are not to serve as a basis for interpretation or construction of this Agreement.

5.4 Submission to Jurisdiction; Waiver of Jury Trial. By accepting this Option, the Participant irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the courts of the State of California and of the United States of America, in each case located in the State of California, for any action arising out of or relating to the Plan and this Option (and agrees not to commence any litigation relating thereto except in such courts), and further agrees that service of any process, summons, notice or document by U.S. registered mail to the address contained in the records of the Company shall be effective service of process for any litigation brought against it in any such court. By accepting this Option, the Participant irrevocably and unconditionally waives any objection to the laying of venue of any litigation arising out of Plan or the Option in the courts of the State of California or the United States of America, in each case located in the State of California, and further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such litigation brought in any such court has been brought in an inconvenient forum. By accepting this Option, the Participant irrevocably and unconditionally waives, to the fullest extent permitted by applicable law, any and all rights to trial by jury in connection with any litigation arising out of or relating to the Plan or the Option.

5.5 Governing Law; Severability. This Agreement and the Exercise Notice shall be administered, interpreted and enforced under the laws of the State of Delaware, without regard to the conflicts of law principles thereof. Should any provision of this Agreement be determined by a court of law to be illegal or unenforceable, the other provisions shall nevertheless remain effective and shall remain enforceable.

5.6 Conformity to Securities Laws. Participant acknowledges that the Plan is intended to conform to the extent necessary with all provisions of the Securities Act and the Exchange Act and any and all regulations and rules promulgated by the Securities and Exchange Commission thereunder, and state securities laws and regulations. Notwithstanding anything herein to the contrary, the Plan shall be administered, and the Option is granted and may be exercised, only in such a manner as to conform to such laws, rules and regulations. To the extent permitted by Applicable Laws, the Plan and this Agreement shall be deemed amended to the extent necessary to conform to such laws, rules and regulations.

5.7 Successors and Assigns. The Company may assign any of its rights under this Agreement and the Exercise Notice to single or multiple assignees, and this Agreement shall inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer herein set forth, this Agreement shall be binding upon Participant and his or her heirs, executors, administrators, successors and assigns.

5.8 Entire Agreement. The Plan and this Agreement (including all Exhibits hereto) constitute the entire agreement of the parties and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof.

* * * * *

EXHIBIT B

TO STOCK OPTION GRANT NOTICE

FORM OF EXERCISE NOTICE

Effective as of today, _____, _____, the undersigned ("***Participant***") hereby elects to exercise Participant's option to purchase Shares of Spruce Biosciences, Inc. (the "***Company***") under and pursuant to the Company's 2016 Equity Incentive Plan (the "***Plan***") and the Stock Option Grant Notice and Stock Option Agreement dated _____, ____ (the "***Option Agreement***"). Capitalized terms used herein without definition shall have the meanings given in the Option Agreement.

Grant Date:	
Number of Shares as to which Option is Exercised:	
Exercise Price per Share:	$
Total Exercise Price:	$
Certificate to be issued or book entry to be made in name of:	
Cash Payment delivered herewith:	$_____ (Representing the full Exercise Price for the Shares, as well as any applicable withholding tax)
Type of Option:	Non-Qualified Stock Option

1. Representations of Participant. Participant acknowledges that Participant has received, read and understood the Plan and the Option Agreement. Participant agrees to abide by and be bound by their terms and conditions.

2. Tax Consultation. Participant understands that Participant may suffer adverse tax consequences as a result of Participant's purchase or disposition of the Shares. Participant represents that Participant has consulted with any tax consultants Participant deems advisable in connection with the purchase or disposition of the Shares and that Participant is not relying on the Company for any tax advice. Participant is relying solely on such advisors and not on any statements or representations of the Company or any of its agents. Participant understands that Participant (and not the Company) shall be responsible for Participant's tax liability that may arise as a result of this investment or the transactions contemplated by this Agreement.

3. Restrictive Legends and Stop-Transfer Orders.

(a) Legends. Participant understands and agrees that the Company shall cause any certificates issued evidencing the Shares to have the legends set forth below or legends substantially equivalent thereto, together with any other legends that may be required by state or federal securities laws:

THE SHARES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED ("ACT"), NOR HAVE THEY BEEN REGISTERED OR QUALIFIED UNDER THE SECURITIES LAWS OF ANY STATE. NO TRANSFER OF SUCH SECURITIES WILL BE PERMITTED UNLESS A REGISTRATION STATEMENT UNDER THE ACT IS IN EFFECT AS TO SUCH TRANSFER, THE TRANSFER IS MADE IN ACCORDANCE WITH RULE 144 UNDER THE ACT, OR IN THE OPINION OF COUNSEL (WHICH MAY BE COUNSEL FOR THE COMPANY) REGISTRATION UNDER THE ACT IS UNNECESSARY IN ORDER FOR SUCH TRANSFER TO COMPLY WITH THE ACT AND WITH APPLICABLE STATE SECURITIES LAWS.

THE SHARES REPRESENTED BY THIS CERTIFICATE MAY BE SUBJECT TO REPURCHASE PURSUANT TO, AND MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH, THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY. SUCH REPURCHASE AND/OR TRANSFER RESTRICTIONS ARE BINDING ON TRANSFEREES OF THESE SHARES.

(a) Participant agrees that, in order to ensure compliance with the restrictions referred to herein, the Company may issue appropriate "stop transfer" instructions to its transfer agent, if any, and that, if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

(b) The Company shall not be required (i) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of this Agreement or (ii) to treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so transferred.

4. Notices. Any notice required or permitted hereunder shall be given in accordance with the provisions set forth in Section 4.2 of the Option Agreement.

5. Further Instruments. Participant hereby agrees to execute such further instruments, including, without limitation, the Investment Representation Statement in the form attached hereto as Exhibit B-1, and to take such further action as the Company determines are reasonably necessary to carry out the purposes and intent of this Agreement.

6. Entire Agreement. The Plan, the Investment Representation Statement in the form attached hereto as Exhibit B-1 and the Option Agreement are incorporated herein by reference. This Agreement, the Plan, the Investment Representation Statement in the form attached hereto as Exhibit B-1 and the Option Agreement constitute the entire agreement of the parties and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof.

ACCEPTED BY:
SPRUCE BIOSCIENCES, INC.

By: _____
Print Name: _____

SUBMITTED BY
PARTICIPANT:

By: _____
Print Name: _____
Address:

_____

_____

EXHIBIT B-1

TO EXERCISE NOTICE

INVESTMENT REPRESENTATION STATEMENT

PARTICIPANT :

COMPANY : SPRUCE BIOSCIENCES, INC.

SECURITY : COMMON STOCK

AMOUNT :

DATE :

In connection with the purchase of the above-listed shares of Common Stock (the "***Securities***") of Spruce Biosciences, Inc. (the "***Company***"), the undersigned ("***Participant***") represents to the Company the following:

(b) Participant is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision to acquire the Securities. Participant is acquiring these Securities for investment for Participant's own account only and not with a view to, or for resale in connection with, any "distribution" thereof within the meaning of the United States Securities Act of 1933, as amended (the "***Securities Act***").

(c) Participant acknowledges and understands that the Securities constitute "restricted securities" under the Securities Act and have not been registered under the Securities Act in reliance upon a specific exemption therefrom, which exemption depends upon, among other things, the bona fide nature of Participant's investment intent as expressed herein. In this connection, Participant understands that, in the view of the United States Securities and Exchange Commission, the statutory basis for such exemption may be unavailable if Participant's representation was predicated solely upon a present intention to hold these Securities for the minimum capital gains period specified under tax statutes, for a deferred sale, for or until an increase or decrease in the market price of the Securities, or for a period of one year or any other fixed period in the future. Participant further understands that the Securities must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. Participant further acknowledges and understands that the Company is under no obligation to register the Securities. Participant understands that any certificate evidencing the Securities will be imprinted with a legend which prohibits the transfer of the Securities unless they are registered or such registration is not required in the opinion of counsel satisfactory to the Company and any other legend required under applicable securities laws or agreements.

(d) Participant is familiar with the provisions of Rule 701 and Rule 144, each promulgated under the Securities Act, which, in substance, permit limited public resale of "restricted securities" acquired, directly or indirectly from the issuer thereof, in a non-public offering subject to the satisfaction of certain conditions. Rule 701 provides that if the issuer qualifies under Rule 701 at the time of the grant of the Option to Participant, the exercise will be exempt from registration under the Securities Act. In the event the Company becomes subject to the reporting requirements of Section 13 or 15(d) of the United States Securities Exchange Act of 1934, ninety (90) days thereafter (or such longer period as any market

stand-off agreement may require) the Securities exempt under Rule 701 may under present law be resold, subject to the satisfaction of certain of the conditions specified by Rule 144, including: (1) the resale being made through a broker in an unsolicited "broker's transaction" or in transactions directly with a market maker (as said term is defined under the United States Securities Exchange Act of 1934); and, in the case of an affiliate, (2) the availability of certain public information about the Company, (3) the amount of Securities being sold during any three (3) month period not exceeding the limitations specified in Rule 144(e), and (4) the timely filing of a Form 144, if applicable.

In the event that the Company does not qualify under Rule 701 at the time of grant of the Option, then the Securities may be resold in certain limited circumstances subject to the provisions of Rule 144, which, effective as of February 15, 2008, requires the resale to occur not less than six months, or, in the event the Company is not subject to the reporting requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, not less than one year, after the later of the date the Securities were sold by the Company or the date the Securities were sold by an affiliate of the Company, within the meaning of Rule 144; and, in the case of acquisition of the Securities by an affiliate, the satisfaction of the conditions set forth in sections (1), (2), (3) and (4) of the paragraph immediately above or, in the case of a non-affiliate who subsequently hold the Securities less than one year, the satisfaction of the conditions set forth in section (2) of the paragraph immediately above.

(e) Participant further understands that in the event all of the applicable requirements of Rule 701 or 144 are not satisfied, registration under the Securities Act, compliance with Regulation A, or some other registration exemption will be required; and that, notwithstanding the fact that Rules 144 and 701 are not exclusive, the Staff of the United States Securities and Exchange Commission has expressed its opinion that persons proposing to sell private placement securities other than in a registered offering and otherwise than pursuant to Rules 144 or 701 will have a substantial burden of proof in establishing that an exemption from registration is available for such offers or sales, and that such persons and their respective brokers who participate in such transactions do so at their own risk. Participant understands that no assurances can be given that any such other registration exemption will be available in such event.

Signature of Participant:

_____

Date: _____, _____

EXHIBIT C

TO STOCK OPTION GRANT NOTICE

STOCK ASSIGNMENT

[*See instructions below*]

FOR VALUE RECEIVED I, _____, hereby sell, assign and transfer unto _____ the shares of the Common Stock of Spruce Biosciences, Inc. registered in my name on the books of said corporation [represented by Certificate No. _____] and do hereby irrevocably constitute and appoint _____ to transfer the said stock on the books of the within named corporation with full power of substitution in the premises.

This Stock Assignment may be used only in accordance with the Stock Option Grant Notice and Stock Option Agreement between Spruce Biosciences, Inc. and the undersigned dated _____, _____.

Dated: _____, _____

Signature: _____

INSTRUCTIONS: Please do not fill in any blanks other than the signature line. The purpose of this assignment is to enable the Company to exercise the Company Repurchase Right, as set forth in the Stock Option Grant Notice and Stock Option Agreement, without requiring additional signatures on the part of Purchaser.

EXHIBIT D

TO STOCK OPTION GRANT NOTICE

JOINT ESCROW INSTRUCTIONS

_____, _____

Secretary
Spruce Biosciences, Inc.

As Escrow Agent for both Spruce Biosciences, Inc. (the "***Company***") and the undersigned purchaser of stock of the Company (the "***Participant***"), you are hereby authorized and directed to hold the documents delivered to you pursuant to the terms of that certain Stock Option Grant Notice and Stock Option Agreement (the "***Agreement***") between the Company and the undersigned, in accordance with the following instructions:

1. In the event the Company or any entitled parties (referred to collectively for convenience herein as the "***Company***") exercises the Company Repurchase Right set forth in the Agreement, the Company shall give to Participant and you a written notice specifying the number of shares of stock to be purchased, the purchase price, and the time for a closing hereunder at the principal office of the Company. Participant and the Company hereby irrevocably authorize and direct you to close the transaction contemplated by such notice in accordance with the terms of said notice.

2. At the closing, you are directed (a) to date the stock assignments necessary for the transfer in question, (b) to fill in the number of shares being transferred, and (c) to deliver the same, together with any certificate evidencing the shares of stock to be transferred, to the Company or its assignee, against the simultaneous delivery to you of the purchase price (by cash, a check, or a combination thereof) for the number of shares of stock being purchased pursuant to the exercise of the Company Repurchase Right.

3. Participant irrevocably authorizes the Company to deposit with you any certificates evidencing shares of stock to be held by you hereunder and any additions and substitutions to said shares as defined in the Agreement. Participant does hereby irrevocably constitute and appoint you as Participant's attorney-in-fact and agent for the term of this escrow to execute, with respect to such securities, all documents necessary or appropriate to make such securities negotiable and to complete any transaction herein contemplated, including but not limited to the filing with any applicable state blue sky authority of any required applications for consent to, or notice of transfer of, the securities. Subject to the provisions of this Section 3 and to the terms of the Agreement, Participant shall exercise all rights and privileges of a stockholder of the Company while the stock is held by you.

4. Upon written request of Participant, but no more than once per calendar year, unless the Company Repurchase Right has been exercised, you will deliver to Participant a certificate or certificates representing the number of shares of stock as are not then subject to the Company Repurchase Right or will provide Participant evidence that such shares have been duly entered into the records of the Company. Within one hundred twenty (120) days after Participant's Termination of Service (within the meaning of the Agreement), you will deliver to Participant a certificate or certificates representing the aggregate number of shares held or issued pursuant to the Agreement and not purchased by the Company or any other entitled parties pursuant to exercise of the Company Repurchase Right or will provide Participant evidence that such shares have been duly entered into the records of the Company.

5. If at the time of termination of this escrow you should have in your possession any documents, securities, or other property belonging to Participant, you shall deliver all of the same to Participant and shall be discharged of all further obligations hereunder.

6. Your duties hereunder may be altered, amended, modified or revoked only by a writing signed by all of the parties hereto.

7. You shall be obligated only for the performance of such duties as are specifically set forth herein and may rely and shall be protected in relying or refraining from acting on any instrument reasonably believed by you to be genuine and to have been signed or presented by the proper party or parties. You shall not be personally liable for any act you may do or omit to do hereunder as escrow agent or as attorney-in-fact for Participant while acting in good faith, and any act done or omitted by you pursuant to the advice of your own attorneys shall be conclusive evidence of such good faith.

8. You are hereby expressly authorized to disregard any and all warnings given by any of the parties hereto or by any other person or corporation, excepting only orders or process of courts of law and are hereby expressly authorized to comply with and obey orders, judgments or decrees of any court. In case you obey or comply with any such order, judgment or decree, you shall not be liable to any of the parties hereto or to any other person, firm or corporation by reason of such compliance, notwithstanding any such order, judgment or decree being subsequently reversed, modified, annulled, set aside, vacated or found to have been entered without jurisdiction.

9. You shall not be liable in any respect on account of the identity, authorities or rights of the parties executing or delivering or purporting to execute or deliver the Agreement or any documents or papers deposited or called for hereunder.

10. You shall not be liable for the expiration of any rights under any applicable state, federal or local statute of limitations or similar statute or regulation with respect to these Joint Escrow Instructions or any documents deposited with you.

11. You shall be entitled to employ such legal counsel and other experts as you may deem necessary properly to advise you in connection with your obligations hereunder, may rely upon the advice of such counsel, and may pay such counsel reasonable compensation therefor.

12. Your responsibilities as escrow agent hereunder shall terminate if you shall cease to be an officer or agent of the Company or if you shall resign by written notice to each party. In the event of any such termination, the Company shall appoint a successor escrow agent.

13. If you reasonably require other or further instruments in connection with these Joint Escrow Instructions or obligations in respect hereto, the necessary parties hereto shall join in furnishing such instruments.

14. It is understood and agreed that should any dispute arise with respect to the delivery and/or ownership or right of possession of the securities held by you hereunder, you are authorized and directed to retain in your possession without liability to anyone all or any part of said securities until such disputes shall have been settled either by mutual written agreement of the parties concerned or by a final order, decree or judgment of a court of competent jurisdiction after the time for appeal has expired and no appeal has been perfected, but you shall be under no duty whatsoever to institute or defend any such proceedings.

15. Any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given upon personal delivery or upon deposit in the United States Post Office, by registered or certified mail with postage and fees prepaid, addressed to each of the other parties thereunto entitled at such addresses as a party may designate by written notice to each of the other parties hereto.

16. By signing these Joint Escrow Instructions, you become a party hereto only for the purpose of said Joint Escrow Instructions; you do not become a party to the Agreement.

17. This instrument shall be binding upon and inure to the benefit of the parties hereto, and their respective successors and permitted assigns.

18. These Joint Escrow Instructions shall be governed by, and construed and enforced in accordance with, the laws of the State of California, excluding that body of law pertaining to conflicts of law.

[*Signature Page Follows*]

IN WITNESS WHEREOF, these Joint Escrow Instructions shall be effective as of the date first set forth above.

SPRUCE BIOSCIENCES, INC.

By: _____
Name: _____
Title: _____

PARTICIPANT

By: _____
Name: _____
Title: _____

ESCROW AGENT

By: _____
Name: _____
Title: _____

EXHIBIT E

TO STOCK OPTION GRANT NOTICE

CONSENT OF SPOUSE OR REGISTERED DOMESTIC PARTNER

I, _____, spouse or registered domestic partner of _____, have read and approve the Stock Option Grant Notice and Stock Option Agreement dated , _____, _____ between my spouse and Spruce Biosciences, Inc. In consideration of granting of the right to my spouse or registered domestic partner to purchase shares of Spruce Biosciences, Inc. set forth in the Stock Option Grant Notice and Stock Option Agreement, I hereby appoint my spouse or registered domestic partner as my attorney-in-fact in respect to the exercise of any rights under the Stock Option Grant Notice and Stock Option Agreement and agree to be bound by the provisions of the Stock Option Grant Notice and Stock Option Agreement insofar as I may have any rights in said Stock Option Grant Notice and Stock Option Agreement or any shares issued pursuant thereto under the community property laws or similar laws relating to marital property in effect in the state of our residence as of the date of the signing of the foregoing Stock Option Grant Notice and Stock Option Agreement.

Dated: _____, _____

_____

Signature of Spouse or Registered Domestic Partner

FORM OF 83(B) ELECTION AND INSTRUCTIONS

These instructions are provided to assist you if you choose to make an election under Section 83(b) of the Internal Revenue Code, as amended, with respect to the shares of common stock of Spruce Biosciences, Inc. transferred to you. **Please consult with your personal tax advisor as to whether an election of this nature will be in your best interests in light of your personal tax situation.**

The executed original of the Section 83(b) election must be filed with the Internal Revenue Service not later than 30 days after the date the shares were transferred to you. **There is no remedy for failure to file on time.** The steps outlined below should be followed to ensure the election is mailed and filed correctly and in a timely manner. **If you make the Section 83(b) election, the election is irrevocable.**

Complete the Section 83(b) election form (attached as Attachment 1) and make three (3) copies of the signed election form. Your spouse or registered domestic partner, if any, should sign the Section 83(b) election form as well.

Prepare the cover letter to the Internal Revenue Service (sample letter attached as Attachment 2).

Send the cover letter with the originally executed Section 83(b) election form and one (1) copy via certified mail, return receipt requested to the Internal Revenue Service at the address of the Internal Revenue Service where you file your personal tax returns. We suggest that you have the package date-stamped at the post office. The post office will provide you with a certified receipt that includes a dated postmark. Enclose a self-addressed, stamped envelope so that the Internal Revenue Service may return a date-stamped copy to you. However, your postmarked receipt is your proof of having timely filed the Section 83(b) election if you do not receive confirmation from the Internal Revenue Service.

One (1) copy must be sent to Spruce Biosciences, Inc. for its records. Note that you do **not** need to attach a copy with your federal income tax return for the applicable calendar year.

Retain the Internal Revenue Service file stamped copy (when returned) for your records.

Please consult your personal tax advisor for the address of the office of the Internal Revenue Service to which you should mail your election form.

ATTACHMENT 1

ELECTION UNDER INTERNAL REVENUE CODE SECTION 83(B)

The undersigned taxpayer hereby elects, pursuant to Section 83(b) of the Internal Revenue Code of 1986, as amended, to include in taxpayer's gross income for the current taxable year the amount of any compensation taxable to taxpayer in connection with taxpayer's receipt of shares (the "***Shares***") of Common Stock of Spruce Biosciences, Inc., a Delaware corporation (the "***Company***").

The name, address and taxpayer identification number of the undersigned taxpayer are:

_____
_____
_____
SSN: _____

The name, address and taxpayer identification number of the Taxpayer's spouse/registered domestic partner are (complete if applicable):

_____
_____
_____
SSN: _____

Description of the property with respect to which the election is being made:

_____ (_____) Shares of the Company.

The date on which the property was transferred was . The taxable year to which this election relates is calendar year ____.

Nature of restrictions to which the property is subject:

The Shares are subject to repurchase by the Company or its assignee upon the occurrence of certain events. This repurchase right lapses based upon the continued performance of services by the taxpayer over time.

The fair market value at the time of transfer (determined without regard to any lapse restrictions, as defined in Treasury Regulation Section 1.83-3(i)) of the Shares was $_____ per Share x _____ Shares = $_____.

The amount paid by the taxpayer for the Shares was _____ per Share x_____ Shares = $_____.

The amount to include in gross income is $_____.

The undersigned taxpayer will file this election with the Internal Revenue Service office with which taxpayer files his or her annual income tax return not later than 30 days after the date of transfer of the property. A copy of this statement has been furnished to the Company. The undersigned is the person performing the services in connection with which the property was transferred.

The undersigned understands that the foregoing election may not be revoked except with the consent of the Commissioner.

Dated: _____, _____ Taxpayer Signature: _____

The undersigned spouse or registered domestic partner of Taxpayer joins in this election. (Complete if applicable).

Dated: _____, _____ Spouse's or Registered Domestic Partner's Signature

_____

Signature(s) Notarized by:

_____

_____

SPRUCE BIOSCIENCES, INC.

SEVERANCE AND CHANGE IN CONTROL POLICY

Spruce Biosciences, Inc. (the "**Company**") has established this Severance and Change in Control Policy (this "**Policy**") as of July 23, 2019 (the "**Effective Date**"). The purpose of the Policy is to attract and retain key employees for the Company, to align their interests with those of the Company's stockholders, and to provide such individuals with an incentive to continue their service with the Company and to maximize the value of the Company upon a potential Change in Control for the benefit of its stockholders.

1. Eligible Individuals

All employees of the Company who are designated by the Administrator as eligible to participate in the Policy will be subject to the terms of this Policy (each such individual, a "**Participant**"). Notwithstanding the foregoing, this Policy will not be effective with respect to any person designated as a Participant by the Administrator unless and until such person agrees in writing (whether in an employment agreement or by countersigning a participation notice in a form approved by the Administrator) to be subject to this Policy and agrees to all of its terms and conditions.

2. Severance Benefits

Subject to the terms of this Policy (including, without limitation, Sections 4 and 11), if a Participant has a Change in Control Termination, the Company will provide such Participant with the following benefits and payments (the "**Severance Benefits**"):

- **Salary Severance**: A lump sum, cash payment equal to six (6) months of the Participant's Base Salary (less applicable withholdings).
- **Pro Rata Target Bonus Severance**: A lump sum, cash payment equal to (a) the Participant's Target Bonus *multiplied by* (b) a fraction, the numerator of which is the number of days between (and including) the start of the fiscal year in which the Participant's Change in Control Termination occurs and the date of the Participant's Change in Control Termination and the denominator of which is 365 (less applicable withholdings).
- **COBRA Severance**: If (a) the Participant was enrolled in a group health plan (*i.e.*, medical, dental, or vision plan) sponsored by the Company or an affiliate immediately prior to the Change in Control Termination, (b) the Participant is eligible to continue coverage under such group health plan under COBRA at the time of the Participant's termination of employment, and (c) the Participant timely elects COBRA coverage, then the Company will pay the applicable COBRA premiums on behalf of the Participant and his or her eligible dependents, if any, covered under the Company's group health plan (or waive the cost of coverage under any self-funded group health plan, if applicable) until the earlier of (i) the duration of the period in which the Participant and his or her eligible dependents, if any, are enrolled in such COBRA coverage (and not otherwise covered by another

employer's group health plan that does not impose an applicable pre-existing condition exclusion) and (ii) a period of six (6) months from the date of the Participant's Change in Control Termination. In addition, in lieu of such COBRA premium payments, the Company may in its sole discretion pay to the Participant, on the first day of each month during the period that it is required to pay the COBRA premium payments for the Participant and his or her eligible dependents, if any, a fully taxable cash payment equal to the applicable COBRA premiums for that month, subject to applicable withholdings. For purposes of this Policy, any applicable insurance premiums that are paid (or deemed paid in the case of self-insured plans) by the Company shall not include any amounts payable by the Participant under a Code Section 125 health care reimbursement plan.

3. Change in Control Vesting Acceleration Benefit

Subject to the terms of this Policy (including, without limitation, Section 11), if a Change in Control occurs while a Participant is an employee of the Company, 100% of the Participant's then-outstanding and unvested Equity Awards will immediately vest in full and, to the extent applicable, become immediately exercisable. If, however, an outstanding Equity Award is to vest and/or the amount of the Equity Award to vest is to be determined based on the achievement of performance criteria, then the Equity Award will vest as to 100% of the amount of the Equity Award assuming the performance criteria had been achieved at target levels for the relevant performance period(s).

4. Conditions to Receipt of Severance Benefits

(a) **Release Agreement**. A Participant's receipt of any severance payments or benefits upon the Participant's Change in Control Termination under Section 2 is subject to the Participant signing and not revoking the Company's then-standard separation agreement and release of claims (which may include an agreement not to disparage the Company, non-solicit provisions, an agreement to assist in any litigation matters, and other standard terms and conditions) (the "**Release**"), which must become effective and irrevocable no later than the 60th day following the Participant's Change in Control Termination (the "**Release Deadline**"). If the Release does not become effective and irrevocable by the Release Deadline, the Participant will forfeit any right to severance payments or benefits under Section 2.

(b) **Confidential Information**. A Participant's receipt of Severance Benefits will be subject to the Participant continuing to comply with the terms of any employee invention assignment and confidentiality agreement between the Participant and the Company.

(c) **Resignation from Officer and Director Positions.** A Participant's receipt of Severance Benefits will be subject to the Participant resigning from all officer and director positions with the Company and its affiliates that the Participant holds (unless otherwise requested by the Company).

(d) **Return of Company Property**. A Participant's receipt of Severance Benefits is subject to the Participant returning all documents and other property provided to the Participant by the Company (with the exception of a copy of the Company employee handbook and personnel documents specifically relating to the Participant), developed or obtained by the Participant in connection with his or her employment with the Company, or otherwise belonging to the Company.

5. Timing of Payment of Severance Benefits

Any lump sum salary severance or pro rata bonus severance payments under Section 2 will be provided within the first two regularly scheduled payroll periods of the Company following the date the Release becomes effective and irrevocable (the "**Severance Start Date**"), subject to any delay required by Section 7 below. Any taxable installments of any COBRA-related severance benefits that otherwise would have been made to the Participant on or before the Severance Start Date will be paid on the Severance Start Date, and any remaining installments thereafter will be provided as specified in this Policy.

6. Definitions

The following terms referred to in this Policy will have the following meanings:

(a) "**Administrator**" means the Board, provided, however, that if the Board has delegated authority to administer the Policy to the Compensation Committee of the Board, then "Administrator" shall also mean the Compensation Committee of the Board. Following the consummation of a Change in Control, the Administrator means the board of directors (or similar body) of the successor entity.

(b) "**Base Salary**" means the Participant's base salary as of the effective date of the Participant's Change in Control Termination (without taking into account any reduction in salary forming the basis for a resignation for Good Reason).

(c) "**Board**" means the Board of Directors of the Company.

(d) "**Cause**" means with respect to a particular Participant, the meaning ascribed to such term in any written agreement between such Participant and the Company defining such term, and, in the absence of such agreement, means with respect to such Participant, the occurrence of any of the following events: (i) such Participant's commission of any felony or any crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof; (ii) such Participant's attempted commission of, or participation in, a fraud or act of dishonesty against the Company; (iii) such Participant's intentional, material violation of any contract or agreement between such Participant and the Company or of any statutory duty owed to the Company; (iv) such Participant's unauthorized use or disclosure of the Company's confidential information or trade secrets; or (v) such Participant's gross misconduct. The determination whether a termination is for Cause shall be made by the Administrator in its sole and exclusive judgment and discretion.

(e) "**Change in Control**" means a Deemed Liquidation Event (as defined in the Company's Amended and Restated Certificate of Incorporation, as amended from time to time, without regard to any election by the holders of Series A Preferred Stock) in which either (i) the amount per share to be paid or distributed to the holders of Series A Preferred Stock is equal to or greater than the Series A Original Issue Price or (ii) such Deemed Liquidation Event is declared to be a Change in Control, for purposes of this Agreement, by the holders of a majority of the outstanding shares of Series A Preferred Stock. Notwithstanding the foregoing, a transaction will not be deemed a Change in Control unless the transaction qualifies as a change in control event within the meaning of Code Section 409A.

(f) "**Change in Control Period**" means the period beginning on the date that is three (3) months prior to the consummation of a Change in Control and ending on the date that is twelve (12) months following the consummation of a Change in Control.

(g) "**Change in Control Termination**" means an Involuntary Termination that occurs within the Change in Control Period. For such purposes, if the events giving rise to a Participant's right to resign for Good Reason arise within the Change in Control Period, and the Participant's resignation occurs not later than thirty (30) days after the expiration of the Cure Period (as defined below), such termination shall be a Change in Control Termination.

(h) "**COBRA**" means the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended, together with any state law of similar effect.

(i) "**Code**" means the Internal Revenue Code of 1986, as amended.

(j) "**Equity Awards**" means any Company equity awards, including, but not limited to, stock options, stock appreciation rights, restricted stock and restricted stock units.

(k) "**Good Reason**" for a Participant's resignation means the occurrence of any of the following events, conditions or actions taken by the Company without Cause and without such Participant's consent: (i) a material reduction of such Participant's annual base salary, which is a reduction of at least 10% of such Participant's annual base salary (unless pursuant to a salary reduction program applicable generally to the Company's similarly situated employees); (ii) a material reduction in such Participant's authority, duties or responsibilities; (iii) a relocation of such Participant's principal place of employment with the Company (or successor to the Company, if applicable) to a place that increases such Participant's one-way commute by more than fifty (50) miles as compared to such Participant's then-current principal place of employment immediately prior to such relocation (excluding regular travel in the ordinary course of business); provided that if such Participant's principal place of employment is his or her personal residence, this clause (iii) shall not apply; provided, however, that in each case above, in order for the Participant's resignation to be deemed to have been for Good Reason, the Participant must first give the Company written notice of the action or omission giving rise to "Good Reason" within thirty (30) days after the first occurrence thereof; the Company must fail to reasonably cure such action or omission within thirty (30) days after receipt of such notice (the "**Cure Period**"), and the employee's resignation must be effective not later than thirty (30) days after the expiration of such Cure Period.

(l) "**Involuntary Termination**" means a termination of a Participant's employment by the Company without Cause (excluding by reason of the Participant's death or disability) or such Participant's voluntary resignation for Good Reason, and in either case, provided such termination also qualifies as a "**separation from service**" (as defined in Section 1.409A-1(h) of the Treasury Regulations).

(m) "**Target Bonus**" means the target annual incentive bonus, expressed in dollars, which the Participant is eligible to earn in the fiscal year in which (i) the Change in Control occurs or (ii) the Change in Control Termination occurs, whichever of (i) or (ii) is greater.

7. Section 409A

This Policy is intended to comply with Section 409A of the Code ("**Section 409A**") or an exemption thereunder and accordingly, to the maximum extent permitted, this Policy will be interpreted and administered in accordance with such intent. Any payments to be made under this Policy upon a termination of employment may only be made upon a "separation from service" under Section 409A, and may only be made upon an event and in a manner that complies with Section 409A or an applicable exemption. Any payments or benefits under this Policy that may be excluded from Section 409A either as separation pay due to an involuntary separation from service or as a short-term deferral shall be excluded from Section 409A to the maximum extent possible. Each installment payment provided under this Policy shall be treated as a separate payment. To the extent required in order to avoid an accelerated or additional tax under Section 409A, amounts that would otherwise be payable and benefits that would otherwise be provided pursuant to this Policy during the six-month period immediately following a separation from service will instead be paid on the first business day after the date that is six months following separation from service. If the Company determines that any severance benefits provided under this Policy constitutes "deferred compensation" under Section 409A, for purposes of determining the schedule for payment of the severance benefits, the effective date of the Release will not be deemed to have occurred any earlier than the sixtieth (60th) day following the separation from service, regardless of when the Release actually becomes effective. In addition to the above, to the extent required to comply with Section 409A and the applicable regulations and guidance issued thereunder, if the applicable deadline for a Participant to execute (and not revoke) the applicable Release spans two calendar years, payment of the applicable severance benefits shall not commence until the beginning of the second calendar year. In no event will the Company reimburse, indemnify, or hold harmless any Participant for any taxes, penalties and interest that may be imposed, or other costs that may be incurred, as a result of Section 409A.

8. Limitation of Payments

If any payment or benefit received or to be received by a Participant (including any payment or benefit received pursuant to this Policy or otherwise) would be (in whole or part) subject to the excise tax imposed by Section 4999 of the Code, or any successor provision thereto, or any similar tax imposed by state or local law, or any interest or penalties with respect to such excise tax (such tax or taxes, together with any such interest or penalties, are hereafter collectively referred to as the "**Excise Tax**"), then the cash payments provided to the Participant under this Policy will first be reduced, with each such payment to be reduced pro rata but without any change in the payment date, and then, if necessary, any accelerated vesting of the Participant's equity awards arising from the terms of such equity awards shall be reduced in the same chronological order in which those equity awards were made, but only to the extent necessary to assure that the Participant receives the greater of (i) the amount of those payments and benefits which would not constitute a parachute payment under Section 280G of the Code or (ii) the amount which yields the Participant the greatest after-tax amount of benefits after taking into account any Excise Tax imposed on the payments and benefits provided to the Participant hereunder (or on any other

payments or benefits to which the Participant may become entitled in connection with any change in control or ownership of the Company or the subsequent termination of the Participant's employment with the Company). Calculations required by this paragraph will be performed by a national accounting firm designated by the Company.

9. Administration of Policy

The Administrator will have full discretion to administer and interpret this Policy. Any decision made or other action taken by the Administrator with respect to this Policy and any interpretation by the Administrator of any term or condition of this Policy, or any related document, will be conclusive and binding on all persons and be given the maximum possible deference allowed by law.

10. Term of Policy

This Policy will remain in effect until terminated by the Administrator.

11. Amendment and Termination of Policy

The Administrator may in its sole discretion amend or terminate the Policy, any participation notice issued pursuant to the Policy, or the benefits provided hereunder at any time, subject to the provisions of this Section 11. Any amendment or termination of the Policy will be in writing. Any amendment to the Policy that (a) causes an individual or group of individuals to cease to be a Participant, or (b) reduces or alters to the detriment of a Participant the Severance Benefits potentially payable to the Participant or the Change in Control vesting acceleration benefits set forth in Section 3 (including, without limitation, imposing additional conditions or modifying the timing of payment) (an amendment described in clause (a) and/or clause (b) being an "adverse amendment or termination"), will be effective only if it is approved by the Administrator and communicated to the affected individual(s) in writing before the effective date of the adverse amendment or termination. Once a Participant has incurred an Involuntary Termination, no amendment or termination of the Policy may, without that Participant's written consent, reduce or alter to the detriment of the Participant the Severance Benefits or any other payments or benefits the Participant is eligible to receive under the Policy. In addition and notwithstanding the preceding, beginning on the date that a Change in Control occurs, the Company may not, without a Participant's written consent, amend or terminate the Policy in any way, nor take any other action under the Policy, which (i) prevents that Participant from becoming eligible for Severance Benefits or any other benefits under the Policy, or (ii) reduces or alters to the detriment of the Participant the Severance Benefits or other benefits under the Policy payable or realizable, or potentially payable or realizable, to the Participant (including, without limitation, imposing additional conditions). The preceding sentence shall not apply to any amendment that otherwise both (x) would take effect before a Change in Control, and (y) meets the requirements of this Section 11 without regard to the preceding sentence.

12. Miscellaneous Provisions

(a) **Accrued Obligations**. Except as set forth in this Policy, rights arising from the terms of the Company's benefit plans shall be governed by the terms of such plans.

(b) **Withholding Taxes**. All payments and benefits under this Policy will be paid less applicable withholding taxes. The Company is authorized to withhold from any payments or benefits all federal, state, local, and/or foreign taxes required to be withheld from the payments or benefits and make any other required payroll deductions. The Company will not pay any Participant's taxes arising from or relating to any payments or benefits under this Policy.

(c) **Exclusive Remedy**. In the event of a termination of a Participant's employment with the Company, the provisions of this Policy are intended to be and are exclusive and in lieu of any other rights or remedies to which the Participant may otherwise be entitled, whether at law, tort or contract, or in equity. Each Participant will be entitled to no benefits, compensation or other payments or rights upon termination of employment other than those benefits expressly set forth in this Policy, to the extent applicable.

(d) **No Mitigation**. A Participant is not required to seek other employment or to attempt in any way to reduce any amounts otherwise payable to the Participant under this Policy.

(e) **At-will Employment**. Nothing in this Policy shall be construed as giving any Participant any right to be retained in the employ of the Company or any subsidiary of the Company or shall affect the terms and conditions of a Participant's employment with the Company or a subsidiary of the Company. A Participant's employment with the Company or any subsidiary of the Company is employment "at-will" and may be terminated at any time and for any reason, with or without notice.

(f) **Choice of Law**. The laws of the State of California will govern all questions concerning the construction, validity and interpretation of this Policy, without regard to that state's conflict of laws provisions.

(g) **Severability**. The invalidity or unenforceability of any provision or provisions of this Policy will not affect the validity or enforceability of any other provision of this Policy, which will remain in full force and effect.

(h) **Successors**. Any such successor of the Company will be deemed substituted for the Company under the terms of this Policy for all purposes. For this purpose, "successor" means any person, firm, corporation, or other business entity which at any time, whether by purchase, merger, or otherwise, directly or indirectly acquires all or substantially all of the assets or business of the Company. None of the rights of the Participant to receive any form of compensation payable pursuant to this Policy may be assigned or transferred except by will or the laws of descent and distribution. Any other attempted assignment, transfer, conveyance, or other disposition of the Participant's right to compensation or other benefits will be null and void.

CONSULTING AGREEMENT

Effective Date: May 6, 2019

This Consulting Agreement (the "***Agreement***") is made as of the Effective Date set forth above by and between Spruce Biosciences, Inc. ***("Client***") and Richard Anthony King ("***Consultant***").

1. Engagement of Services. Client may issue Project Assignments to Consultant in the form attached to this Agreement as **Exhibit A** ("***Project Assignment***"). Subject to the terms of this Agreement, Consultant will render the services set forth in Project Assignment(s) accepted by Consultant (the "***Services***") by the completion dates set forth therein. Except as otherwise provided in the applicable Project Assignment, Consultant will be free of control and direction from the Client (other than general oversight and control over the results of the Services), and will have exclusive control over the manner and means of performing the Services, including the choice of place and time. Consultant will provide, at Consultant's own expense, a place of work and all equipment, tools and other materials necessary to complete the Services; however, to the extent necessary to facilitate performance of the Services, Client may, in its discretion, make certain of its equipment or facilities available to Consultant at Consultant's request. While on the Client's premises, Consultant agrees to comply with Client's then-current access rules and procedures, including those related to safety, security and confidentiality. Consultant agrees and acknowledges that Consultant has no expectation of privacy with respect to Client's telecommunications, networking or information processing systems (including stored computer files, email messages and voice messages) and that Consultant's activities, including the sending or receiving of any files or messages, on or using those systems may be monitored, and the contents of such files and messages may be reviewed and disclosed, at any time, without notice.

2. Compensation. Client will pay Consultant the fee set forth in each Project Assignment for Services rendered pursuant to this Agreement as Consultant's sole compensation for such Services. Consultant will be reimbursed only for expenses that are expressly provided for in a Project Assignment or that have been approved in advance in writing by Client, provided Consultant has furnished such documentation for authorized expenses as Client may reasonably request. Payment of Consultant's fees and expenses will be in accordance with the terms and conditions set forth in the applicable Project Assignment. Upon termination of this Agreement for any reason, Consultant will be paid fees on the basis stated in the Project Assignment(s) for work which has been completed. Unless otherwise provided in a Project Assignment, payment to Consultant of undisputed fees will be due 30 days following Client's receipt of an invoice that contains accurate records of the work performed sufficient to document the invoiced fees.

3. Ownership of Work Product. Consultant agrees that any and all Work Product (as defined below) will be the sole and exclusive property of Client. Consultant hereby irrevocably assigns to Client all right, title and interest worldwide in and to any deliverables specified in a Project Assignment (***"Deliverables"***), and to any ideas, concepts, processes, discoveries, developments, formulae, information, materials, improvements, designs, artwork, content, software programs, other copyrightable works, and any other work product created, conceived or developed by Consultant (whether alone or jointly with others) for Client during the term of this Agreement pursuant to the Project Assignment, including all copyrights, patents, trademarks, trade secrets, and other intellectual property rights therein (the "***Work Product***"). Consultant retains no rights to use the Work Product and agrees not to challenge the validity of Client's ownership of the Work Product. Consultant agrees to execute, at Client's request and expense, all documents and other instruments necessary or desirable to confirm such assignment, including without limitation, the copyright assignment set forth as **Exhibit B** ("***Assignment of Copyright***") and the patent assignment set forth as **Exhibit C** ("***Assignment of Patent Application***"). Consultant hereby irrevocably appoints Client as Consultant's attorney-in-fact for the purpose of executing such documents on Consultant's behalf, which appointment is coupled with an interest. Consultant will deliver any Deliverables in accordance with the applicable Project Assignment and disclose promptly in writing to Client all other Work Product.

4. Other Rights. If Consultant has any rights, including without limitation "artist's rights" or "moral rights," in the Work Product that cannot be assigned, Consultant hereby unconditionally and irrevocably grants to Client an exclusive (even as to Consultant), worldwide, fully paid and royalty-free, irrevocable, perpetual license, with rights to sublicense through multiple tiers of sublicensees, to use, reproduce, distribute, create derivative works of, publicly perform and publicly display the Work Product in any medium or format, whether now known or later developed. In the event that Consultant has any rights in the Work Product that cannot be assigned or licensed, Consultant unconditionally and irrevocably waives the enforcement of such rights, and all claims and causes of action of any kind against Client or Client's customers.

5. License to Preexisting IP. Consultant agrees not to use or incorporate into Work Product any intellectual property developed by any third party or by Consultant other than in the course of performing services for Client ("***Preexisting IP***"). In the event Consultant uses or incorporates Preexisting IP into Work Product, Consultant hereby grants to Client a non-exclusive, perpetual, fully-paid and royalty-free, irrevocable and worldwide right, with the right to sublicense through multiple levels of sublicensees, to use, reproduce, distribute, create derivative works of, publicly perform and publicly display in any medium or format, whether now known or later developed, such Preexisting IP incorporated or used in Work Product. However, in no event will Consultant incorporate into the Work Product any software code licensed under the GNU GPL or LGPL or any similar "open source" license. Consultant represents and warrants that Consultant has an unqualified right to license to Client all Preexisting IP as provided in this section.

6. Representations and Warranties & Consultant's Business. Consultant represents and warrants that: (a) the Services will be performed in a professional manner and in accordance with the industry standards and the Work Product will comply with the requirements set forth in the applicable Project Assignment, (b) Work Product will be an original work of Consultant, (c) Consultant has the right and unrestricted ability to assign the ownership of Work Product to Client as set forth in Section 3 (including without limitation the right to assign the ownership of any Work Product created by Consultant's employees or contractors), (d) neither the Work Product nor any element thereof will infringe upon or misappropriate any copyright, patent, trademark, trade secret, right of publicity or privacy, or any other proprietary right of any person, whether contractual, statutory or common law, (e) Consultant has an unqualified right to grant to Client the license to Preexisting IP set forth in Section 5, and (f) Consultant will comply with all applicable federal, state, local and foreign laws governing self-employed individuals, including laws requiring the payment of taxes, such as income and employment taxes, and social security, disability, and other contributions. Consultant further represents and warrants that Consultant is self-employed in an independently established trade, occupation, or business, maintains and operates a business that is separate and independent from Client's business, holds himself or herself out to the public as independently competent and available to provide applicable services similar to the Services, has obtained and/or expects to obtain clients or customers other than Client for whom Consultant performs services, and will perform work for Client that Consultant understands is outside the usual course of Client's business. Consultant agrees to indemnify and hold Client harmless from any and all damages, costs, claims, expenses or other liability (including reasonable attorneys' fees) arising from or relating to the breach or alleged breach by Consultant of the representations and warranties set forth in this Section 6.

7. Independent Contractor Relationship. Consultant's relationship with Client is that of an independent contractor, and nothing in this Agreement is intended to, or should be construed to, create a partnership, agency, joint venture or employment relationship between Client and any of Consultant's employees or agents. Consultant is not authorized to make any representation, contract or commitment on

behalf of Client. Consultant (if Consultant is an individual) and Consultant's employees will not be entitled to any of the benefits that Client may make available to its employees, including, but not limited to, group health or life insurance, profit-sharing or retirement benefits. Because Consultant is an independent contractor, Client will not withhold or make payments for social security, make unemployment insurance or disability insurance contributions, or obtain workers' compensation insurance on behalf of Consultant. Consultant is solely responsible for, and will file, on a timely basis, all tax returns and payments required to be filed with, or made to, any federal, state or local tax authority with respect to the performance of Services and receipt of fees under this Agreement. Consultant is solely responsible for, and must maintain adequate records of, expenses incurred in the course of performing Services under this Agreement. No part of Consultant's compensation will be subject to withholding by Client for the payment of any social security, federal, state or any other employee payroll taxes. Client will regularly report amounts paid to Consultant by filing Form 1099-MISC with the Internal Revenue Service as required by law. If, notwithstanding the foregoing, Consultant is reclassified as an employee of Client, or any affiliate of Client, by the U.S. Internal Revenue Service, the U.S. Department of Labor, or any other federal or state or foreign agency as the result of any administrative or judicial proceeding, Consultant agrees that Consultant will not, as the result of such reclassification, be entitled to or eligible for, on either a prospective or retrospective basis, any employee benefits under any plans or programs established or maintained by Client.

8. Confidential Information. Consultant agrees that during the term of this Agreement and thereafter it will not use or permit the use of Client's Confidential Information in any manner or for any purpose not expressly set forth in this Agreement, will hold such Confidential Information in confidence and protect it from unauthorized use and disclosure, and will not disclose such Confidential Information to any third parties except as set forth in Section 9 below. "***Confidential Information***" as used in this Agreement means all information disclosed by Client to Consultant, whether during or before the term of this Agreement, that is not generally known in the Client's trade or industry and will include, without limitation: (a) concepts and ideas relating to the development and distribution of content in any medium or to the current, future and proposed products or services of Client or its subsidiaries or affiliates; (b) trade secrets, drawings, inventions, know-how, software programs, and software source documents; (c) information regarding plans for research, development, new service offerings or products, marketing and selling, business plans, business forecasts, budgets and unpublished financial statements, licenses and distribution arrangements, prices and costs, suppliers and customers; (d) existence of any business discussions, negotiations or agreements between the parties; and (e) any information regarding the skills and compensation of employees, contractors or other agents of Client or its subsidiaries or affiliates. Confidential Information also includes proprietary or confidential information of any third party who may disclose such information to Client or Consultant in the course of Client's business. Confidential Information does not include information that (x) is or becomes a part of the public domain through no act or omission of Consultant, (y) is disclosed to Consultant by a third party without restrictions on disclosure, or (z) was in Consultant's lawful possession prior to the disclosure and was not obtained by Consultant either directly or indirectly from Client. In addition, this section will not be construed to prohibit disclosure of Confidential Information to the extent that such disclosure is required by law or valid order of a court or other governmental authority; *provided, however*, that Consultant will first have given notice to Client and will have made a reasonable effort to obtain a protective order requiring that the Confidential Information so disclosed be used only for the purposes for which the order was issued. All Confidential Information furnished to Consultant by Client is the sole and exclusive property of Client or its suppliers or customers. Upon request by Client, Consultant agrees to deliver to Client the original and any copies of the Confidential Information within 10 (ten) working days. Notwithstanding the foregoing nondisclosure obligations, pursuant to 18 U.S.C. Section 1833(b), Consultant will not be held criminally or civilly liable under any

federal or state trade secret law for the disclosure of a trade secret that is made: (1) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney, and solely for the purpose of reporting or investigating a suspected violation of law; or (2) in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

9. Consultant's Employees, Consultants and Agents. Consultant will ensure that each of its employees, consultants and agents who will have access to any Confidential Information or perform any Services has entered into a binding written agreement that is expressly for the benefit of Client and protects Client's rights and interests to at least the same degree as Section 8. Client reserves the right to refuse or limit Consultant's use of any of its employees, consultants or agents or to require Consultant to remove any employee, consultant or agent already engaged in the performance of the Services. Client's exercise of such right will in no way limit Consultant's obligations under this Agreement.

10. No Conflict of Interest. During the term of this Agreement, Consultant will not accept work, enter into a contract, or accept an obligation from any third party, inconsistent or incompatible with Consultant's obligations, or the scope of Services rendered for Client, under this Agreement. Consultant warrants that there is no other contract or duty on its part inconsistent with this Agreement. Consultant agrees to indemnify Client from any and all loss or liability incurred by reason of the alleged breach by Consultant of any services agreement with any third party.

11. Term and Termination.

11.1 Term. The initial term of this Agreement is for three months from the Effective Date set forth above (the "***Initial Term***"). Thereafter, this Agreement will continue until terminated as provided in this Agreement.

11.2 Termination Without Cause. Client may terminate this Agreement with or without cause, at any time after the Initial Term upon 30 days' prior written notice to Consultant. Consultant may terminate this Agreement without cause, at any time after the Initial Term when no Project Assignment is in effect upon 30 days' prior written notice to Client.

11.3 Termination for Cause. Either party may terminate this Agreement immediately in the event the other party has materially breached the Agreement and failed to cure such breach within 15 days after notice by the non-breaching party is given.

11.4 Survival. The rights and obligations contained in Sections 3 ("***Ownership of Work Product***"), 4 ("***Other Rights***"), 5 ("***License to Preexisting IP***"), 6 ("***Representations and Warranties***"), and 8 ("***Confidential Information***") and 12 ("***Noninterference with Business***") will survive any termination or expiration of this Agreement.

12. Noninterference with Business. Consultant agrees that during the Term of this Agreement, Consultant will not, without Client's express written consent, either directly or indirectly engage in any employment or business activity that is competitive with, or would otherwise conflict with the Services rendered to, or that would otherwise interfere with the business of, the Client. Consultant agrees that during the Term of this Agreement, and for one year thereafter, Consultant will not either directly or indirectly, solicit or attempt to solicit any employee, independent contractor, or consultant of Client to terminate his, her or its relationship with Client in order to become an employee, consultant, or independent contractor to or for any other person or entity.

13. Arbitration of All Disputes.

13.1 Agreement to Arbitrate. To ensure the timely and economical resolution of disputes that may arise between Consultant and Client, both Consultant and Client mutually agree that pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by applicable law, they will submit solely to final, binding and confidential arbitration any and all disputes, claims, or causes of action arising from or relating to: (i) the negotiation, execution, interpretation, performance, breach or enforcement of this Agreement; or (ii) the relationship between Client and Consultant; or (iii) the termination of that relationship; *provided, however*, that this Section 13 shall not apply to any claim or cause of action that cannot be subject to arbitration as a matter of law. **BY AGREEING TO THIS ARBITRATION PROCEDURE, BOTH CONSULTANT AND CLIENT WAIVE THE RIGHT TO RESOLVE ANY SUCH DISPUTES THROUGH A TRIAL BY JURY OR JUDGE OR THROUGH AN ADMINISTRATIVE PROCEEDING.**

13.2 Arbitrator Authority. The Arbitrator shall have the sole and exclusive authority to determine whether a dispute, claim or cause of action is subject to arbitration under this Section 13 and to determine any procedural questions which grow out of such disputes, claims or causes of action and bear on their final disposition.

13.3 Individual Capacity Only. All claims, disputes, or causes of action under this Section 13, whether by Consultant or Client, must be brought solely in an individual capacity, and shall not be brought as a plaintiff (or claimant) or class member in any purported class or representative proceeding, nor joined or consolidated with the claims of any other person or entity. The Arbitrator may not consolidate the claims of more than one person or entity, and may not preside over any form of representative or class proceeding. To the extent that the preceding sentences in this Section 13.3 are found to violate applicable law or are otherwise found unenforceable, any claim(s) alleged or brought on behalf of a class shall proceed in a court of law rather than by arbitration.

13.4 Arbitration Process. Any arbitration proceeding under this Section 13 shall be presided over by a single arbitrator and conducted by JAMS, Inc. ("***JAMS***") in San Francisco under the then applicable JAMS streamlined rules for the resolution of disputes (available upon request and also currently available at http://www.jamsadr.com/rules-streamlined-arbitration/). Consultant and Client both have the right to be represented by legal counsel at any arbitration proceeding, at each party's own expense. The Arbitrator shall: **(i)** have the authority to compel adequate discovery for the resolution of the dispute; **(ii)** issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award; and **(iii)** be authorized to award any or all remedies that Consultant or Client would be entitled to seek in a court of law. Client shall pay all JAMS arbitration fees.

13.5 Injunctive Relief and Final Orders. Nothing in this Section 13 is intended to prevent either Consultant or Client from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any final award in any arbitration proceeding hereunder may be entered as a judgment in the federal and state courts of any competent jurisdiction and enforced accordingly

14. Successors and Assigns. Consultant may not subcontract or otherwise delegate or assign this Agreement or any of its obligations under this Agreement without Client's prior written consent. Any attempted assignment in violation of the foregoing will be null and void. Subject to the foregoing, this Agreement will be for the benefit of Client's successors and assigns, and will be binding on Consultant's assignees. Additionally, Client may not delegate or assign this Agreement or any of its obligations under this Agreement without Consultant's prior written consent.

15. Notices. Any notice required or permitted by this Agreement will be in writing and will be delivered as follows with notice deemed given as indicated: (i) by personal delivery when delivered personally; (ii) by overnight courier upon written verification of receipt; (iii) by telecopy or facsimile transmission upon acknowledgment of receipt of electronic transmission; or (iv) by certified or registered mail, return receipt requested, upon verification of receipt. Notice will be sent to the addresses set forth below or such other address as either party may specify in writing.

16. Governing Law. This Agreement will be governed in all respects by the laws of the United States of America and by the laws of the State of California, without giving effect to any conflicts of laws principles that require the application of the law of a different jurisdiction.

17. Severability. Should any provisions of this Agreement be held by a court of law to be illegal, invalid or unenforceable, the legality, validity and enforceability of the remaining provisions of this Agreement will not be affected or impaired thereby.

18. Waiver. The waiver by Client of a material breach of any provision of this Agreement by Consultant will not operate or be construed as a waiver of any other or subsequent breach by Consultant.

19. Injunctive Relief for Breach. Consultant's obligations under this Agreement are of a unique character that gives them particular value; material breach of any of such obligations, specifically the unauthorized use or disclosure of Preexisting IP or material Confidential Information, will result in irreparable and continuing damage to Client for which there will be no adequate remedy at law; and, in the event of such material breach, Client will be entitled to injunctive relief and/or a decree for specific performance, and such other and further relief as may be proper (including monetary damages if appropriate).

20. Entire Agreement. This Agreement constitutes the entire agreement between the parties relating to this subject matter and supersedes all prior or contemporaneous oral or written agreements concerning such subject matter. The terms of this Agreement will govern all services undertaken by Consultant for Client; *provided, however*, that in the event of any conflict between the terms of this Agreement and any Project Assignment, the terms of the applicable Project Assignment will control. This Agreement may only be changed or amended by mutual agreement of authorized representatives of the parties in writing. This Agreement may be executed in two or more counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and any counterpart so delivered will be deemed to have been duly and validly delivered and be valid and effective for all purposes.

[Remainder of page intentionally left blank]

The parties have executed this Agreement as of the Effective Date.

CLIENT:

Spruce Biosciences, Inc.

By: */s/ Michael Grey*
Name: Michael Grey
Title: Executive Chairman

CONSULTANT:

Richard King

/s/ Richard King
Signature

EXHIBIT A

Project Assignment #1 Under Consulting Agreement

Dated: May 5, 2019

Project:

Consultant will render such services as Client may from time to time request, including, without limiting the generality of the foregoing: Consultant will act as interim CEO of Client and will be responsible for strategic advice, counseling and other services as requested by the Client's Board of Directors (the "***Board***").

Schedule Of Work:

The work will commence on May 6, 2019.

Fees And Reimbursement:

A. **Cash Fee**: $35,000 per month, paid at the end of each month for which services are performed

Equity Fee: Subject to approval by the Board, the Client will grant Consultant 380,000 shares of the Client's common stock (the "***Option***"). The Option will be governed by the terms and conditions of the Client's 2016 Equity Incentive Plan (the "***Plan***") and Consultant's form of stock option grant notice and stock option agreement, and will include the following vesting schedule: 50% of the total shares subject to the Option (190,000) will be immediately vest upon the date of grant (the "***Vesting Commencement Date***"), and 8.33% of the total shares subject to the Option will vest monthly thereafter, commencing December 6, 2019, on the same day of the month as the Vesting Commencement Date, subject to Consultant's Continuous Service (as defined in the Plan) as of each such date. In the event of a successful agreement between the Client and the Federal Drug Administration (the "***FDA***") regarding the remainder of Phase 2 and a Phase 3 program leading to an acceptable label, and subject to Consultant's continued performance of the Services under this Agreement, both as determined in the Client's sole discretion, the vesting of the Option shall accelerate upon acceptance by the Board that an acceptable agreement with FDA has been reached such that one hundred percent (100%) of the shares subject to the Option will be immediately vested and exercisable.

Financing Fee: In addition, Consultant will be eligible to receive an extra retention and financing consulting fee in the target total amount of $200,000 (the "***Financing Fee***"), conditioned upon Consultant's continued performance of the Services under this Agreement until and through the successful closing of a Series B financing resulting in more than $35,000,000 in proceeds to the Client, provided that such closing occurs on or before March 31, 2020. Whether such successful closing has occurred will be determined in the Client's sole discretion. If such closing occurs, the Client will pay the Financing Fee to Consultant within 15 business days of such closing. For the avoidance of doubt, if such closing occurs after March 31, 2020, Consultant will not be eligible for and will not receive the Financing Fee.

B. Consultant will be reimbursed for all reasonable business expenses if approved in advance by Client.

Consultant will invoice Client monthly for services and expenses and will provide such reasonable receipts or other documentation of expenses as Client might request.

Payment terms: net 10 days from receipt of invoice. Client will be invoiced on the twenty first day of each month for services rendered and expenses incurred during the current month.

The parties have executed this Project Assignment as of the date first written above.

CLIENT:

Spruce Biosciences, Inc.

By: */s/ Michael Grey*
Name: Michael Grey
Title: Executive Chair

CONSULTANT:

Richard King

/s/ Richard King
Signature

SPRUCE BIOSCIENCES, INC.

EMPLOYMENT AGREEMENT

This Employment Agreement (the "Agreement") is made and entered into by and between Richard A. King ("Executive") and Spruce Biosciences, Inc. (the "Company") (together referred to herein as the "Parties"), effective as of October 1, 2019 (the "Effective Date").

R E C I T A L S

A. The Company desires to assure itself of the services of Executive by engaging Executive to perform services under the terms hereof.

B. Executive desires to provide services to the Company on the terms herein provided.

In consideration of the foregoing, and for other good and valuable consideration, including the respective covenants and agreements set forth below, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. Employment.

(a) General. The Company shall employ Executive as a full-time employee of the Company effective as of the Effective Date for the period and in the position set forth in this Section 1, and upon the other terms and conditions herein provided.

(b) Position and Duties. Effective on the Effective Date, Executive: (i) shall serve as the President and Chief Executive Officer of the Company, with responsibilities, duties and authority usual and customary for such position, subject to direction by the Company's Board of Directors (the "Board"); (ii) shall report directly to the Board; and (iii) agrees promptly and faithfully to comply with all present and future policies, requirements, directions, requests and rules and regulations of the Company in connection with the Company's business. In addition, Executive shall continue to serve as a member of the Board while employed hereunder.

(c) Exclusivity. Except with the prior written approval of the Board (which the Board may grant or withhold in its sole and absolute discretion), Executive shall devote Executive's entire working time, attention and energies to the business of the Company and shall not (i) accept any other employment or consultancy; or (ii) engage, directly or indirectly, in any other business activity (whether or not pursued for pecuniary advantage) that is or may be competitive with, or that might place Executive in a competing position to, that of the Company or any of its subsidiaries or affiliates. Notwithstanding the foregoing, Executive may (x) serve on the board of directors of up to two (2) other private or public companies, subject in each case to the prior approval of the Board, not to be unreasonably withheld; and (y) devote reasonable time to unpaid activities such as supervision of personal investments and activities involving professional, charitable, educational, religious, civic and similar types of activities, speaking engagements and membership on committees, provided that in each case such activities do not individually or in the aggregate interfere with the performance of Executive's duties under this Agreement, violate the Company's standards of conduct then in effect or raise a conflict under the Company's conflict of interest policies.

2. Compensation and Related Matters.

(a) Base Salary. Executive's initial annual base salary (the "Base Salary") will be $400,000, less payroll deductions and all required withholdings, payable in accordance with the Company's normal payroll practices. The Board or an authorized committee of the Board shall review Executive's Base Salary annually, and any changes to Base Salary will be communicated in writing to Executive.

(b) Bonus. Executive will be eligible to receive an annual performance bonus with a target achievement of fifty percent (50%) of Executive's then-Base Salary (the "Annual Bonus"). Any Annual Bonus amount payable shall be based on the achievement of performance goals to be established by the Company, as determined by the Board or an authorized committee of the Board. The Board or an authorized committee of the Board shall review Executive's Annual Bonus target periodically. Any Annual Bonus earned by Executive pursuant to this section shall be paid to Executive, less authorized deductions and required withholding obligations, within 75 days following the end of the fiscal year to which the bonus relates. Executive hereby acknowledges and agrees that nothing contained herein confers upon Executive any right to an Annual Bonus in any calendar year, and that whether the Company pays Executive an Annual Bonus under such program will be determined by the Company in its sole discretion. For clarification, this Annual Bonus is separate and distinct from the Financing Bonus outlined in Section 2(d).

(c) Equity Awards.

(i) Stock Options. Executive currently holds an option to purchase 380,000 shares of the Company's common stock (the "Existing Option"). In addition, in connection with entering into this Agreement, Executive shall be granted an option to purchase 1,148,406 shares of the Company's common stock (the "Additional Option"), which together with the Initial Option represents approximately four percent (4%) of the Fully Diluted Shares (as defined below) as of the Effective Date, with an exercise price per share equal to the fair market value of a share of the Company's common stock on the date of grant (as determined by the Board in its sole discretion), provided that Executive is employed by the Company on the date of grant. Subject to Executive's continued service with the Company through the applicable vesting date, 1/48th of the total number of shares initially subject to the Additional Option will vest on each monthly anniversary of the Effective Date. The Additional Option, and any shares acquired upon exercise, will be subject to the terms and conditions of the Company's equity incentive plan and option agreements to be entered into between Executive and the Company. For the purposes of this Agreement, "Fully Diluted Shares" shall be calculated by adding (x) the number of outstanding shares of capital stock of the Company, plus (y) the number of shares of Company common stock subject to issuance under outstanding options or warrants, plus (z) the number of unallocated shares of Company common stock reserved for issuance pursuant to the Company's equity incentive plans, in each case, as of the close of the business day preceding the date of determination.

(ii) Additional Equity Grants. Executive shall be eligible to receive additional grants of equity awards in the Board's sole discretion.

(d) Financing Bonus. Executive shall be eligible to receive a special bonus in the target total amount of $200,000 (the "Financing Bonus"), conditioned upon Executive's continued employment under this Agreement until and through the successful closing of a Series B financing resulting in more than $35,000,000 in proceeds to the Company, provided that such closing occurs on or before March 31, 2020. Whether such successful closing has occurred will be determined in the Company's reasonable discretion. If such closing occurs, the Company will pay the Financing Bonus to Executive within fifteen (15) business days of such closing. For the avoidance of doubt, if such closing occurs after March 31, 2020, Executive will not be eligible for and will not receive the Financing Bonus, unless the Board in its sole discretion determines otherwise.

(e) Benefits. Executive may participate in such employee and executive benefit plans and programs as the Company may from time to time offer to provide to its executives, subject to the terms and conditions of such plans. Notwithstanding the foregoing, nothing herein is intended, or shall be construed, to require the Company to institute or continue any, or any particular, plan or benefits.

(f) Vacation. Executive shall be entitled to vacation, sick leave, holidays and other paid time-off benefits provided by the Company from time to time which are applicable to the Company's executive officers in accordance with Company vacation policy. The opportunity to take paid time off is contingent upon Executive's workload and ability to manage Executive's schedule.

(g) Business Expenses. The Company shall reimburse Executive for all reasonable, documented, out-of-pocket travel and other business expenses incurred by Executive in the performance of Executive's duties to the Company in accordance with the Company's applicable expense reimbursement policies and procedures as in effect from time to time.

3. Termination.

(a) At-Will Employment. The Company and Executive acknowledge that Executive's employment is and shall continue to be "at-will," as defined under applicable law. This means that it is not for any specified period of time and can be terminated by Executive or by the Company at any time, with or without advance notice, and for any or no particular reason or cause. It also means that Executive's job duties, title and responsibility and reporting level, work schedule, compensation and benefits, as well as the Company's personnel policies and procedures, may be changed with prospective effect, with or without notice, at any time in the sole discretion of the Company. This "at-will" nature of Executive's employment shall remain unchanged during Executive's tenure as an employee and may not be changed, except in an express writing signed by Executive and a duly authorized member of the Board. If Executive's employment terminates for any reason, Executive shall not be entitled to any payments, benefits, damages, awards or compensation other than as provided by this Agreement.

(b) Deemed Resignation. Upon termination of Executive's employment for any reason, Executive shall be deemed to have resigned from all offices and directorships, if any, then held with the Company or any of its affiliates, and, at the Company's request, Executive shall execute such documents as are necessary or desirable to effectuate such resignations.

4. Obligations upon Termination of Employment.

(a) Executive's Obligations. Executive hereby acknowledges and agrees that all Personal Property (as defined below) and equipment furnished to, or prepared by, Executive in the course of, or incident to, Executive's employment, belongs to the Company and shall be promptly returned to the Company within 30 days of the termination of Executive's employment (and will not be kept in Executive's possession or delivered to anyone else). For purposes of this Agreement, "Personal Property" includes, without limitation, all books, manuals, records, reports, notes, contracts, lists, blueprints, and other documents, or materials, or copies thereof (including computer files), keys, building card keys, company credit cards, telephone calling cards, computer hardware and software, cellular and portable telephone equipment, personal digital assistant (PDA) devices and all other proprietary information relating to the business of the Company or its subsidiaries or affiliates. Following termination, Executive shall not retain any written or other tangible material containing any proprietary information of the Company or its subsidiaries or affiliates. In addition, Executive shall continue to be subject to the Confidential Information Agreement. The representations and warranties contained herein and Executive's obligations under Subsection 4(a) and the Confidential Information Agreement hereof shall survive the termination of Executive's employment and the termination of this Agreement.

(b) Payments of Accrued Obligations upon Termination of Employment. Upon a termination of Executive's employment for any reason, Executive (or Executive's estate or legal representative, as applicable) shall be entitled to receive, within ten (10) days after the date Executive terminates employment with the Company (or such earlier date as may be required by applicable law): (i) any portion of Executive's Base Salary earned through Executive's termination date not theretofore paid, (ii) any expenses owed to Executive under Section 2(g) above, (iii) any accrued but unused vacation pay owed to Executive pursuant to Section 2(f) above, and (iv) any amount arising from Executive's participation in, or benefits under, any employee benefit plans, programs or arrangements under Section 2(e) above, which amounts shall be payable in accordance with the terms and conditions of such employee benefit plans, programs or arrangements.

(c) Double Trigger Severance Benefits. Executive shall be designated as a participant in the Company's Severance and Change of Control Policy (the "Severance Policy"). Subject to the terms of the Severance Policy and Executive's Participation Notice thereunder, if Executive experiences a Change of Control Termination (as defined in the Severance Policy), the Company shall provide Executive with the severance benefits and payments set forth therein, except that the references to "six (6) months" in the Salary Severance and COBRA Severance sections of the Severance Policy shall be modified to read "twelve (12) months" in the case of Executive.

(d) Single Trigger Severance Benefits. If Executive experiences an Involuntary Termination (as defined in the Severance Policy) that is not a Change of Control Termination, Executive will be entitled to the following severance benefits (the "Single Trigger Severance Benefits"):

(i) continuation of Executive's then-current Base Salary, payable monthly according to the Company's normal payroll, for a period of nine (9) months after the date of the Involuntary Termination;

(ii) if (A) Executive was enrolled in a group health plan (i.e., medical, dental, or vision plan) sponsored by the Company or an affiliate immediately prior to the Involuntary Termination, (B) Executive is eligible to continue coverage under such group health plan under COBRA at the time of the Involuntary Termination, and (C) Executive timely elects COBRA coverage, then the Company will pay the applicable COBRA premiums on behalf of Executive and his eligible dependents, if any, covered under the Company's group health plan (or waive the cost of coverage under any self-funded group health plan, if applicable) until the earlier of (x) the duration of the period in which Executive and his eligible dependents, if any, are enrolled in such COBRA coverage (and not otherwise covered by another employer's group health plan that does not impose an applicable pre-existing condition exclusion) and (y) a period of nine (9) months from the date of the Involuntary Termination. In addition, in lieu of such COBRA premium payments, the Company may in its sole discretion pay to Executive, on the first day of each month during the period that it is required to pay the COBRA premium payments for Executive and his eligible dependents, if any, a fully taxable cash payment equal to the applicable COBRA premiums for that month, subject to applicable withholdings; and

(iii) (iii) a lump sum, cash payment equal to Executive's Annual Bonus for the year in which the Involuntary Termination occurs, pro-rated for the amount of time up to the date of separation, and paid to Executive within thirty (30) days of the date of separation.

Executive's receipt of the Single Trigger Severance Benefits is subject to Executive signing and not revoking the Company's then-standard separation agreement and release of claims (which may include an agreement not to disparage the Company, non-solicit provisions, an agreement to assist in any litigation matters, and other standard terms and conditions) (the "Release"), which must become effective and irrevocable no later than the 60th day following the Participant's Involuntary Termination (the "Release Deadline"). If the Release does not become effective and irrevocable by the Release Deadline, the Participant will forfeit any right to the Single Trigger Severance Benefits. Executive's receipt of the Single Trigger Severance Benefits will also be subject to Executive continuing to comply with the terms of the Confidential Information Agreement (as defined below).

5. Successors.

(a) Company's Successors. Any successor to the Company (whether direct or indirect and whether by purchase, merger, consolidation, liquidation or otherwise) to all or substantially all of the Company's business and/or assets shall assume the obligations under this Agreement and agree expressly to perform the obligations under this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations in the absence of a succession. For all purposes under this Agreement, the term "Company" shall include any successor to the Company's business and/or assets which executes and delivers the assumption agreement described in this Section 5(a) or which becomes bound by the terms of this Agreement by operation of law.

(b) Executive's Successors. The terms of this Agreement and all rights of Executive hereunder shall inure to the benefit of, and be enforceable by, Executive's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

6. Notices. Notices and all other communications contemplated by this Agreement shall be in writing and shall be deemed to have been duly given when personally delivered or one day following mailing via Federal Express or similar overnight courier service. In the case of Executive, mailed notices shall be addressed to Executive at Executive's home address that the Company has on file for Executive. In the case of the Company, mailed notices shall be addressed to its corporate headquarters, to the attention of the Executive Chairman of the Board.

7. Dispute Resolution. To ensure the timely and economical resolution of disputes that arise in connection with this Agreement, Executive and the Company agree that any and all controversies, claims and disputes arising out of or relating to this Agreement, including without limitation any alleged violation of its terms, shall be resolved by final and binding arbitration before a single neutral arbitrator in San Francisco County, California, in accordance with the Employment Dispute Resolution Rules of the American Arbitration Association ("AAA"). The arbitration shall be commenced by filing a demand for arbitration with the AAA within fourteen (14) days after the filing Party has given notice of such breach to the other Party. The arbitrator shall award the prevailing Party attorneys' fees and expert fees, if any. Notwithstanding the foregoing, it is acknowledged that it will be impossible to measure in money the damages that would be suffered if the Parties fail to comply with any of the obligations imposed on them under Section 9(a) hereof, and that in the event of any such failure, an aggrieved person will be irreparably damaged and will not have an adequate remedy at law. Any such person shall, therefore, be entitled to injunctive relief, including specific performance, to enforce such obligations, and if any action shall be brought in equity to enforce any of the provisions of Section 9(a) of this Agreement, none of the Parties hereto shall raise the defense that there is an adequate remedy at law.

8. Section 409A. The intent of the Parties is that the payments and benefits under this Agreement comply with or be exempt from Section 409A of the Code and the Department of Treasury regulations and other interpretive guidance issued thereunder, including without limitation any such regulations or other guidance that may be issued after the Effective Date, ("Section 409A") and, accordingly, to the maximum extent permitted, this Agreement shall be interpreted to be in compliance therewith. If the Company determines that any provision of this Agreement would cause Executive to incur any additional tax or interest under Section 409A (with specificity as to the reason therefor), the Company and Executive shall take commercially reasonable efforts to reform such provision to try to comply with or be exempt from Section 409A through good faith modifications to the minimum extent reasonably appropriate to conform with Section 409A, provided that any such modifications shall not increase the cost or liability to the Company. To the extent that any provision hereof is modified in order to comply with or be exempt from Section 409A, such modification shall be made in good faith and shall, to the maximum extent reasonably possible, maintain the original intent and economic benefit to Executive and the Company of the applicable provision without violating the provisions of Section 409A.

(a) Separation from Service. Notwithstanding any provision to the contrary in this Agreement, no amount deemed deferred compensation subject to Section 409A of the Code shall be payable pursuant to Section 4 above unless Executive's termination of employment constitutes a "separation from service" with the Company within the meaning of Section 409A ("Separation from Service") and, except as provided under Section 8(b) below, any such amount shall not be paid, or in the case of installments, commence payment, until the sixtieth (60th) day following Executive's Separation from Service. Any installment payments that would have been made to Executive during the sixty (60) day period immediately following Executive's Separation from Service but for the preceding sentence shall be paid to Executive on the sixtieth (60th) day following Executive's Separation from Service and the remaining payments shall be made as provided in this Agreement.

(b) Specified Employee. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed at the time of Executive's Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (i) the expiration of the six (6)-month period measured from the date of Executive's Separation from Service or (ii) the date of Executive's death. Upon the first day of the seventh (7th) month following the date of the Executive's Separation from Service, all payments deferred pursuant to this Section 8(b) shall be paid in a lump sum to Executive, and any remaining payments due under this Agreement shall be paid as otherwise provided herein.

(c) Expense Reimbursements. To the extent that any reimbursements payable pursuant to this Agreement are subject to the provisions of Section 409A, any such reimbursements payable to Executive pursuant to this Agreement shall be paid to Executive no later than December 31 of the year following the year in which the expense was incurred, the amount of expenses reimbursed in one year shall not affect the amount eligible for reimbursement in any subsequent year, and Executive's right to reimbursement under this Agreement will not be subject to liquidation or exchange for another benefit.

(d) Installments. For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive's right to receive any installment payments under this Agreement shall be treated as a right to receive a series of separate payments and, accordingly, each such installment payment shall at all times be considered a separate and distinct payment.

9. Miscellaneous Provisions.

(a) Confidentiality Agreement. As a condition of Executive's employment with the Company, Executive shall execute and abide by the Company's standard Proprietary Information and Inventions Assignment Agreement (the "Confidential Information Agreement"), a copy of which is attached hereto as Exhibit A.

(b) Withholdings and Offsets. The Company shall be entitled to withhold from any amounts payable under this Agreement any federal, state, local or foreign withholding or other taxes or charges which the Company is required to withhold. The Company shall be entitled to rely on an opinion of counsel if any questions as to the amount or requirement of withholding shall arise. If Executive is indebted to the Company at Executive's termination date, the Company reserves the right to offset any severance payments under this Agreement by the amount of such indebtedness.

(c) Waiver. No provision of this Agreement shall be modified, waived or dis- charged unless the modification, waiver or discharge is agreed to in writing and signed by Executive and by an authorized officer of the Company (other than Executive). No waiver by either Party of any breach of, or of compliance with, any condition or provision of this Agreement by the other Party shall be considered a waiver of any other condition or provision or of the same condition or provision at another time.

(d) Whole Agreement. This Agreement and the Confidential Information Agreement represent the entire understanding of the Parties hereto with respect to the subject matter hereof and supersede all prior arrangements and understandings regarding same, including the Consulting Agreement between the Parties dated May 6, 2019.

(e) Amendment. This Agreement cannot be amended or modified except by a written agreement signed by Executive and an authorized member of the Company.

(f) Choice of Law. The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of California.

(g) Severability. The finding by a court of competent jurisdiction of the unenforceability, invalidity or illegality of any provision of this Agreement shall not render any other provision of this Agreement unenforceable, invalid or illegal. Such court shall have the authority to modify or replace the invalid or unenforceable term or provision with a valid and enforceable term or provision which most accurately represents the intention of the Parties hereto with respect to the invalid or unenforceable term or provision.

(h) Interpretation; Construction. The headings set forth in this Agreement are for convenience of reference only and shall not be used in interpreting this Agreement. This Agreement has been drafted by legal counsel representing the Company, but Executive has been encouraged to consult with, and has consulted with, Executive's own independent counsel and tax advisors with respect to the terms of this Agreement. The Parties hereto acknowledge that each Party hereto and its counsel has reviewed and revised, or had an opportunity to review and revise, this Agreement, and any rule of construction to the effect that any ambiguities are to be resolved against the drafting Party shall not be employed in the interpretation of this Agreement.

(i) Representations; Warranties. Executive represents and warrants that Executive is not restricted or prohibited, contractually or otherwise, from entering into and performing each of the terms and covenants contained in this Agreement, and that Executive's execution and performance of this Agreement will not violate or breach any other agreements between Executive and any other person or entity.

(j) Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instrument.

(*Signature page follows*)

IN WITNESS WHEREOF, each of the Parties has executed this Agreement, in the case of the Company by its duly authorized member, as of the day and year set forth below.

SPRUCE BIOSCIENCES, INC.

By: /s/ Michael Grey
Name: Michael Grey
Title: Executive Chairman
Date: 10/15/2019

EXECUTIVE

/s/ Richard King
Name: Richard A. King
Date: 10/15/2019

SPRUCE BIOSCIENCES, INC.

EMPLOYMENT AGREEMENT

This Employment Agreement (the "Agreement") is made and entered into by and between Alexis R. Howerton, Ph.D. ("Executive") and Spruce Biosciences, Inc. (the "Company") (together referred to herein as the "Parties"), effective as of May 2, 2016 (the "Effective Date"). This Agreement supersedes in its entirety any other agreement to which the Company is a party with respect to Executive's employment with the Company, except for the Proprietary Information and Inventions Assignment Agreement between the Company and Executive (the "Confidential Information Agreement").

R E C I T A L S

A. The Company desires to assure itself of the services of Executive by engaging Executive to perform services under the terms hereof.

B. Executive desires to provide services to the Company on the terms herein provided.

C. Certain capitalized terms used in this Agreement are defined in Section 11 below.

In consideration of the foregoing, and for other good and valuable consideration, including the respective covenants and agreements set forth below, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. Employment.

(a) General. The Company shall employ Executive as a full-time employee of the Company effective as of the Effective Date for the period and in the position set forth in this Section 1, and upon the other terms and conditions herein provided.

(b) Position and Duties. Effective on the Effective Date, Executive: (i) shall serve as the Chief Executive Officer of the Company, with responsibilities, duties and authority usual and customary for such position, subject to direction by the Company's Board of Directors (the "Board"); (ii) shall report directly to the Board; and (iii) agrees promptly and faithfully to comply with all present and future policies, requirements, directions, requests and rules and regulations of the Company in connection with the Company's business. In addition, Executive shall continue to serve as a member of the Board while employed hereunder.

(c) Exclusivity. Except with the prior written approval of the Board (which the Board may grant or withhold in its sole and absolute discretion), Executive shall devote Executive's entire working time, attention and energies to the business of the Company and shall not (i) accept any other employment or consultancy; (ii) serve on the board of directors or similar body of any other entity; or (iii) engage, directly or indirectly, in any other business activity

(whether or not pursued for pecuniary advantage) that is or may be competitive with, or that might place Executive in a competing position to, that of the Company or any of its subsidiaries or affiliates. Notwithstanding the foregoing, Executive may devote reasonable time to unpaid activities such as supervision of personal investments and activities involving professional, charitable, educational, religious, civic and similar types of activities, speaking engagements and membership on committees, provided such activities do not individually or in the aggregate interfere with the performance of Executive's duties under this Agreement, violate the Company's standards of conduct then in effect or raise a conflict under the Company's conflict of interest policies.

2. Compensation and Related Matters.

(a) Base Salary. Executive's annual base salary (the "Base Salary") will be $275,000, less payroll deductions and all required withholdings, payable in accordance with the Company's normal payroll practices. The Board or an authorized committee of the Board shall review Executive's Base Salary periodically.

(b) Bonus. If and when the Company adopts a formal incentive performance bonus program, Executive will be eligible to receive an annual performance bonus pursuant to such program, with a target achievement of twenty five percent (25%) of Executive's then-Base Salary (the "Annual Bonus"). Any Annual Bonus amount payable shall be based on the achievement of performance goals to be established by the Company and shall be subject to the terms and conditions of the adopted formal bonus program. The Board or a committee of the Board shall review Executive's Annual Bonus periodically. Any Annual Bonus earned by Executive pursuant to this section shall be paid to Executive, less authorized deductions and required withholding obligations, within two and a half months following the end of the fiscal year to which the bonus relates. The Company currently anticipates that such formal bonus program shall be adopted following the closing of the Company's Series A equity financing. Executive hereby acknowledges and agrees that nothing contained herein confers upon Executive any right to an Annual Bonus in any calendar year, and that whether and/or when the Company adopts a formal performance bonus program and whether the Company pays Executive an Annual Bonus under such program will be determined by the Company in its sole discretion.

(c) Equity Awards.

(i) Founder's Stock. Executive currently holds 3,750,000 shares of the Company's common stock (the "Founder's Shares") as the result of the conversion of the Company from a limited liability company to a corporation. In connection with entering into this Agreement, Executive hereby agrees that two-thirds (2/3rd) of the Founder's Shares (such shares, the "Restricted Shares") will become subject to certain restrictions, including a right of repurchase in favor of the Company, as set forth in a stock restriction agreement by and between Executive and the Company. Subject to Executive's continued service with the Company through the applicable vesting date, 1/24th of the total number of Restricted Shares will vest and the restrictions thereupon shall lapse on each monthly anniversary of the Effective Date.

(ii) Stock Options. In addition, in connection with entering into this Agreement, Executive shall be granted, subject to approval by the Board, an option to purchase 600,000 shares of the Company's common stock (the "Initial Option"), which represents approximately two percent (2%) of the Fully Diluted Shares (as defined below) as of the Effective Date, with an exercise price per share equal to the fair market value of a share of the Company's common stock on the date of grant (as determined by the Board in its sole discretion), *provided* that Executive is employed by the Company on the date of grant. Subject to Executive's continued service with the Company through the applicable vesting date, 1/48th of the total number of shares initially subject to the Initial Option will vest on each monthly anniversary of the Effective Date. As soon as reasonably practicable following the first anniversary of the Effective Date, Executive shall be granted, subject to approval by the Board, an option to purchase that number of shares of the Company's common stock (the "Second Option" and, together with the Initial Option, the "Options") such that the Initial Option plus the Second Option are equivalent in total to approximately four percent (4%) of the Fully Diluted Shares with an exercise price per share equal to the fair market value of a share of the Company's common stock on the date of grant (as determined by the Board in its sole discretion), provided that Executive is employed by the Company as its Chief Executive Officer on the date of grant. Subject to Executive's continued service with the Company through the applicable vesting date, 1/48th of the total number of shares initially subject to the Second Option will vest on each monthly anniversary of the applicable date of grant. The Options, and any shares acquired upon exercise, will be subject to the terms and conditions of the Company's equity incentive plan and option agreements to be entered into between Executive and the Company. For the purposes of this Agreement, "Fully Diluted Shares" shall be calculated by adding (x) the number of outstanding shares of capital stock of the Company, plus (y) the number of shares of Company common stock subject to issuance under outstanding options or warrants, plus (z) the number of unallocated shares of Company common stock reserved for issuance pursuant to the Company's stock option plans, in each case, as of the close of the business day preceding the date of determination.

(iii) Additional Equity Grants. Executive shall be eligible to receive additional grants of equity awards in the Board's sole discretion.

(d) Benefits. Executive may participate in such employee and executive benefit plans and programs as the Company may from time to time offer to provide to its executives, subject to the terms and conditions of such plans. Notwithstanding the foregoing, nothing herein is intended, or shall be construed, to require the Company to institute or continue any, or any particular, plan or benefits. Prior to the adoption of health insurance benefit plan(s) by the Company, Executive shall be eligible to receive, at her election, a monthly cash lump-sum bonus equal to $1,200, less applicable withholdings and deductions, for Executive's health insurance payments for the period of time between the Effective Date and date the Company adopts health insurance benefit plans of its own.

(e) Vacation. Executive shall be entitled to vacation, sick leave, holidays and other paid time-off benefits provided by the Company from time to time which are applicable to the Company's executive officers in accordance with Company policy. The opportunity to take paid time off is contingent upon Executive's workload and ability to manage Executive's schedule.

(f) Business Expenses. The Company shall reimburse Executive for all reasonable, documented, out-of-pocket travel and other business expenses incurred by Executive in the performance of Executive's duties to the Company in accordance with the Company's applicable expense reimbursement policies and procedures as in effect from time to time.

3. Termination.

(a) At-Will Employment. The Company and Executive acknowledge that Executive's employment is and shall continue to be "at-will," as defined under applicable law. This means that it is not for any specified period of time and can be terminated by Executive or by the Company at any time, with or without advance notice, and for any or no particular reason or cause. It also means that Executive's job duties, title and responsibility and reporting level, work schedule, compensation and benefits, as well as the Company's personnel policies and procedures, may be changed with prospective effect, with or without notice, at any time in the sole discretion of the Company. This "at-will" nature of Executive's employment shall remain unchanged during Executive's tenure as an employee and may not be changed, except in an express writing signed by Executive and a duly authorized member of the Board. If Executive's employment terminates for any reason, Executive shall not be entitled to any payments, benefits, damages, awards or compensation other than as provided by this Agreement.

(b) Deemed Resignation. Upon termination of Executive's employment for any reason, Executive shall be deemed to have resigned from all offices and directorships, if any, then held with the Company or any of its affiliates, and, at the Company's request, Executive shall execute such documents as are necessary or desirable to effectuate such resignations.

4. Obligations upon Termination of Employment.

(a) Executive's Obligations. Executive hereby acknowledges and agrees that all Personal Property (as defined below) and equipment furnished to, or prepared by, Executive in the course of, or incident to, Executive's employment, belongs to the Company and shall be promptly returned to the Company upon termination of Executive's employment (and will not be kept in Executive's possession or delivered to anyone else). For purposes of this Agreement, "Personal Property" includes, without limitation, all books, manuals, records, reports, notes, contracts, lists, blueprints, and other documents, or materials, or copies thereof (including computer files), keys, building card keys, company credit cards, telephone calling cards, computer hardware and software, cellular and portable telephone equipment, personal digital assistant (PDA) devices and all other proprietary information relating to the business of the Company or its subsidiaries or affiliates. Following termination, Executive shall not retain any written or other tangible material containing any proprietary information of the Company or its subsidiaries or affiliates. In addition, Executive shall continue to be subject to the Confidential Information Agreement. The representations and warranties contained herein and Executive's obligations under Subsection 4(a) and the Confidential Information Agreement hereof shall survive the termination of Executive's employment and the termination of this Agreement.

(b) Payments of Accrued Obligations upon Termination of Employment. Upon a termination of Executive's employment for any reason, Executive (or Executive's estate or legal representative, as applicable) shall be entitled to receive, within ten (10) days after the date Executive terminates employment with the Company (or such earlier date as may be required by applicable law): (i) any portion of Executive's Base Salary earned through Executive's termination date not theretofore paid, (ii) any expenses owed to Executive under Section 2(f) above, (iii) any accrued but unused vacation pay owed to Executive pursuant to Section 2(e) above, and (iv) any amount arising from Executive's participation in, or benefits under, any employee benefit plans, programs or arrangements under Section 2(d) above, which amounts shall be payable in accordance with the terms and conditions of such employee benefit plans, programs or arrangements.

(c) Severance Payments upon Termination Without Cause Other Than During a Change in Control Period. If Executive experiences a Covered Termination other than during a Change in Control Period, and if Executive executes a general release of all claims against the Company and its affiliates in a form acceptable to the Company (a "Release of Claims") that becomes effective and irrevocable within sixty (60) days, or such shorter period of time specified by the Company, following such Covered Termination, then, in addition to any accrued obligations payable under Section 4(b) above, the Company shall provide Executive with the following:

(i) Severance. Executive shall be entitled to receive an amount equal to six (6) months of Executive's then-existing annual Base Salary in effect as of Executive's termination date, less applicable withholdings, which shall be payable in a cash lump sum on the first regular payroll date following the date of Executive's Release of Claims becomes effective and irrevocable.

(ii) Continued Healthcare. The Company shall notify Executive of any right to continue group health plan coverage sponsored by the Company or an affiliate of the Company immediately prior to Executive's date of termination pursuant to the provisions of the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"). If Executive elects to receive such continued healthcare coverage, the Company shall directly pay, or reimburse Executive for, the premium for Executive and Executive' s covered dependents, less the amount of Executive's monthly premium contributions for such coverage prior to termination, for the period commencing on the first day of the first full calendar month following the date the Release of Claims becomes effective and irrevocable through the earlier of (A) the last day of the sixth (6th) full calendar month following the date the Release of Claims becomes effective and irrevocable and (B) the date Executive and Executive's covered dependents, if any, become eligible for healthcare coverage under another employer's plan(s). Executive shall notify the Company immediately if Executive becomes covered by a group health plan of a subsequent employer. After the Company ceases to pay premiums pursuant to the preceding sentence, Executive may, if eligible, elect to continue healthcare coverage at Executive's expense in accordance the provisions of COBRA.

(iii) Equity Awards. The Restricted Shares shall automatically become vested and all restrictions thereon shall lapse with respect to one hundred percent (100%) of the then-unvested shares subject to thereto effective as of immediately prior to such termination date. In addition, each outstanding equity award held by Executive other than the Restricted Shares shall automatically become vested and, if applicable, exercisable and any forfeiture restrictions or rights of repurchase thereon shall lapse, in each case, with respect to that number of shares that would have vested had Executive remained employed with the Company for an additional six (6) months following the termination date, effective as of immediately prior to such termination date.

(d) Severance Payments upon a Covered Termination During a Change in Control Period. If Executive experiences a Covered Termination during a Change in Control Period, and if Executive executes a Release of Claims that becomes effective and irrevocable within sixty (60) days, or such shorter period of time specified by the Company, following such Covered Termination, then, in addition to any accrued obligations payable under Section 4(b) above, then the Company shall provide Executive with the following (i) the severance payments and benefits provided in Section 4(c)(i) and (ii) above and (ii) each outstanding equity award held by Executive shall automatically become vested and, if applicable, exercisable and any forfeiture restrictions or rights of repurchase thereon shall lapse, in each case, with respect to one hundred percent (100%) of the then-unvested shares subject to such outstanding award effective as of immediately prior to such termination date.

(e) No Other Severance. The provisions of this Section 4 shall supersede in their entirety any severance payment or other arrangement provided by the Company, including, without limitation, any severance plan/policy of the Company.

(f) No Requirement to Mitigate; Survival. Executive shall not be required to mitigate the amount of any payment provided for under this Agreement by seeking other employment or in any other manner. Notwithstanding anything to the contrary in this Agreement, the termination of Executive's employment shall not impair the rights or obligations of any party.

(g) Certain Reductions. The Company shall reduce Executive's severance benefits under this Agreement, in whole or in part, by any other severance benefits, pay in lieu of notice, or other similar benefits payable to Executive by the Company in connection with Executive's termination, including but not limited to payments or benefits pursuant to (i) any applicable legal requirement, including, without limitation, the Worker Adjustment and Retraining Notification Act, or (ii) any Company policy or practice providing for Executive to remain on the payroll without being in active service for a limited period of time after being given notice of the termination of Executive's employment. The benefits provided under this Agreement are intended to satisfy, to the greatest extent possible, any and all statutory obligations that may arise out of Executive's termination of employment. Such reductions shall be applied on a retroactive basis, with severance benefits previously paid being recharacterized as payments pursuant to the Company's statutory obligation.

5. Limitation on Payments.

(a) Notwithstanding anything in this Agreement to the contrary, if any payment or distribution Executive would receive pursuant to this Agreement or otherwise ("Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the "Code"), and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then the Company shall cause to be determined, before any amounts of the Payment are paid to Executive, which of the following alternative forms of payment would maximize Executive's after-tax proceeds: (A) payment in full of the entire amount of the Payment (a "Full Payment"), or (B) payment of only a part of the Payment so that Executive receives that largest Payment possible without being subject to the Excise Tax (a "Reduced Payment"), whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the Excise Tax (all computed at the highest marginal rate, net of the maximum reduction in federal income taxes which could be obtained from a deduction of such state and local taxes), results in Executive's receipt, on an after-tax basis, of the greater amount of the Payment, notwithstanding that all or some portion the Payment may be subject to the Excise Tax.

(b) If a Reduced Payment is made pursuant to this Section 5, (i) the Payment shall be paid only to the extent permitted under the Reduced Payment alternative, and Executive shall have no rights to any additional payments and/or benefits constituting the Payment, and (ii) reduction in payments and/or benefits will occur in the following order: (1) reduction of cash payments; (2) cancellation of accelerated vesting of equity awards other than stock options; (3) cancellation of accelerated vesting of stock options; and (4) reduction of other benefits payable to Executive. In the event that acceleration of compensation from Executive's equity awards is to be reduced, such acceleration of vesting shall be canceled in the reverse order of the date of grant.

(c) All determinations required to be made under this Section 5 shall be made by such adviser as may be selected by the Company, *provided*, that the adviser's determination shall be made based upon "substantial authority" within the meaning of Section 6662 of the Code. The adviser shall provide its determination, together with detailed supporting calculations and documentation, to Executive and the Company within fifteen (15) business days following the date of termination of Executive's employment, if applicable, or such other time as requested by Executive (*provided*, that Executive reasonably believes that any of the Payments may be subject to the Excise Tax) or the Company. All reasonable fees and expenses of the adviser in reaching such a determination shall be borne solely by the Company.

6. Successors.

(a) Company's Successors. Any successor to the Company (whether direct or indirect and whether by purchase, merger, consolidation, liquidation or otherwise) to all or substantially all of the Company's business and/or assets shall assume the obligations under this Agreement and agree expressly to perform the obligations under this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations in the absence of a succession. For all purposes under this Agreement, the term "Company" shall include any successor to the Company's business and/or assets which executes and delivers the assumption agreement described in this Section 6(a) or which becomes bound by the terms of this Agreement by operation of law.

(b) Executive's Successors. The terms of this Agreement and all rights of Executive hereunder shall inure to the benefit of, and be enforceable by, Executive's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

7. Notices. Notices and all other communications contemplated by this Agreement shall be in writing and shall be deemed to have been duly given when personally delivered or one day following mailing via Federal Express or similar overnight courier service. In the case of Executive, mailed notices shall be addressed to Executive at Executive's home address that the Company has on file for Executive. In the case of the Company, mailed notices shall be addressed to its corporate headquarters, and all notices shall be directed to the attention of the General Counsel of the Company.

8. Dispute Resolution. To ensure the timely and economical resolution of disputes that arise in connection with this Agreement, Executive and the Company agree that any and all controversies, claims and disputes arising out of or relating to this Agreement, including without limitation any alleged violation of its terms, shall be resolved by final and binding arbitration before a single neutral arbitrator in San Francisco County, California, in accordance with the Employment Dispute Resolution Rules of the American Arbitration Association ("AAA"). The arbitration shall be commenced by filing a demand for arbitration with the AAA within fourteen (14) days after the filing Party has given notice of such breach to the other Party. The arbitrator shall award the prevailing Party attorneys' fees and expert fees, if any. Notwithstanding the foregoing, it is acknowledged that it will be impossible to measure in money the damages that would be suffered if the Parties fail to comply with any of the obligations imposed on them under Section 10(a) hereof, and that in the event of any such failure, an aggrieved person will be irreparably damaged and will not have an adequate remedy at law. Any such person shall, therefore, be entitled to injunctive relief, including specific performance, to enforce such obligations, and if any action shall be brought in equity to enforce any of the provisions of Section 10(a) of this Agreement, none of the Parties hereto shall raise the defense that there is an adequate remedy at law.

9. Section 409A. The intent of the Parties is that the payments and benefits under this Agreement comply with or be exempt from Section 409A of the Code and the Department of Treasury regulations and other interpretive guidance issued thereunder, including without limitation any such regulations or other guidance that may be issued after the Effective Date, ("Section 409A") and, accordingly, to the maximum extent permitted, this Agreement shall be

interpreted to be in compliance therewith. If the Company determines that any provision of this Agreement would cause Executive to incur any additional tax or interest under Section 409A (with specificity as to the reason therefor), the Company and Executive shall take commercially reasonable efforts to reform such provision to try to comply with or be exempt from Section 409A through good faith modifications to the minimum extent reasonably appropriate to conform with Section 409A, *provided* that any such modifications shall not increase the cost or liability to the Company. To the extent that any provision hereof is modified in order to comply with or be exempt from Section 409A, such modification shall be made in good faith and shall, to the maximum extent reasonably possible, maintain the original intent and economic benefit to Executive and the Company of the applicable provision without violating the provisions of Section 409A.

(a) Separation from Service. Notwithstanding any provision to the contrary in this Agreement, no amount deemed deferred compensation subject to Section 409A of the Code shall be payable pursuant to Section 4 above unless Executive's termination of employment constitutes a "separation from service" with the Company within the meaning of Section 409A ("Separation from Service") and, except as provided under Section 9(b) below, any such amount shall not be paid, or in the case of installments, commence payment, until the sixtieth (60th) day following Executive's Separation from Service. Any installment payments that would have been made to Executive during the sixty (60) day period immediately following Executive's Separation from Service but for the preceding sentence shall be paid to Executive on the sixtieth (60th) day following Executive's Separation from Service and the remaining payments shall be made as provided in this Agreement.

(b) Specified Employee. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed at the time of her Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (i) the expiration of the six (6)-month period measured from the date of Executive's Separation from Service or (ii) the date of Executive's death. Upon the first day of the seventh (7th) month following the date of the Executive's Separation from Service, all payments deferred pursuant to this Section 9(b) shall be paid in a lump sum to Executive, and any remaining payments due under this Agreement shall be paid as otherwise provided herein.

(c) Expense Reimbursements. To the extent that any reimbursements payable pursuant to this Agreement are subject to the provisions of Section 409A, any such reimbursements payable to Executive pursuant to this Agreement shall be paid to Executive no later than December 31 of the year following the year in which the expense was incurred, the amount of expenses reimbursed in one year shall not affect the amount eligible for reimbursement in any subsequent year, and Executive's right to reimbursement under this Agreement will not be subject to liquidation or exchange for another benefit.

(d) Installments. For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive's right to receive any installment payments under this Agreement shall be treated as a right to receive a series of separate payments and, accordingly, each such installment payment shall at all times be considered a separate and distinct payment.

10. Miscellaneous Provisions.

(a) Confidentiality Agreement. As a condition of Executive's employment with the Company, Executive shall abide by the Confidential Information Agreement.

(b) Withholdings and Offsets. The Company shall be entitled to withhold from any amounts payable under this Agreement any federal, state, local or foreign withholding or other taxes or charges which the Company is required to withhold. The Company shall be entitled to rely on an opinion of counsel if any questions as to the amount or requirement of withholding shall arise. If Executive is indebted to the Company at her termination date, the Company reserves the right to offset any severance payments under this Agreement by the amount of such indebtedness.

(c) Waiver. No provision of this Agreement shall be modified, waived or dis-charged unless the modification, waiver or discharge is agreed to in writing and signed by Executive and by an authorized officer of the Company (other than Executive). No waiver by either Party of any breach of, or of compliance with, any condition or provision of this Agreement by the other Party shall be considered a waiver of any other condition or provision or of the same condition or provision at another time.

(d) Whole Agreement. This Agreement and the Confidential Information Agreement represent the entire understanding of the Parties hereto with respect to the subject matter hereof and supersede all prior arrangements and understandings regarding same.

(e) Amendment. This Agreement cannot be amended or modified except by a written agreement signed by Executive and an authorized member of the Company.

(f) Choice of Law. The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of California.

(g) Severability. The finding by a court of competent jurisdiction of the unenforceability, invalidity or illegality of any provision of this Agreement shall not render any other provision of this Agreement unenforceable, invalid or illegal. Such court shall have the authority to modify or replace the invalid or unenforceable term or provision with a valid and enforceable term or provision which most accurately represents the intention of the Parties hereto with respect to the invalid or unenforceable term or provision.

(h) Interpretation; Construction. The headings set forth in this Agreement are for convenience of reference only and shall not be used in interpreting this Agreement. This Agreement has been drafted by legal counsel representing the Company, but Executive has been encouraged to consult with, and has consulted with, Executive's own independent counsel and tax advisors with respect to the terms of this Agreement. The Parties hereto acknowledge that each Party hereto and its counsel has reviewed and revised, or had an opportunity to review and revise, this Agreement, and any rule of construction to the effect that any ambiguities are to be resolved against the drafting Party shall not be employed in the interpretation of this Agreement.

(i) Representations; Warranties. Executive represents and warrants that Executive is not restricted or prohibited, contractually or otherwise, from entering into and performing each of the terms and covenants contained in this Agreement, and that Executive's execution and performance of this Agreement will not violate or breach any other agreements between Executive and any other person or entity and that Executive has not engaged in any act or omission that could be reasonably expected to result in or lead to an event constituting "Cause" for purposes of this Agreement.

(j) Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instrument.

11. Definition of Terms. The following terms referred to in this Agreement shall have the following meanings:

(a) Cause. "Cause" means (i) Executive's unauthorized use or disclosure of confidential information or trade secrets of the Company or any material breach of a written agreement between Executive and the Company, including without limitation a material breach of this Agreement, the Confidential Information Agreement or any other similar agreement; (ii) Executive's commission of, indictment for or the entry of a plea of guilty or *nolo contendere* by Executive to, a felony under the laws of the United States or any state thereof or any crime involving dishonesty or moral turpitude (or any similar crime in any jurisdiction outside the United States); (iii) Executive's negligence or willful misconduct in the performance of Executive's duties or Executive's willful or repeated failure or refusal to substantially perform assigned duties; (iv) any act of fraud, embezzlement, material misappropriation or dishonesty committed by Executive's against the Company; (v) any acts, omissions or statements by Executive which the Company determines to be materially detrimental or damaging to the reputation, operations, prospects or business relations of the Company; or (vi) Executive's termination in connection with a dissolution, wind-down or liquidation of the Company (that is not a Change in Control), including as part of a voluntary or involuntary bankruptcy or insolvency proceedings.

(b) Change in Control. "Change in Control" means (i) a merger or consolidation of the Company with or into any other corporation or other entity or person, (ii) a sale, lease, exchange or other transfer in one transaction or a series of related transactions of all or substantially all of the Company's assets, or (iii) any other transaction, including the sale by the Company of new shares of its capital stock or a transfer of existing shares of capital stock of the Company, the result of which is that a third party that is not an affiliate of the Company or

its stockholders (or a group of third parties not affiliated with the Company or its stockholders) immediately prior to such transaction acquires or holds capital stock of the Company representing a majority of the Company's outstanding voting power immediately following such transaction; *provided* that the following events shall not constitute a "Change in Control": (A) a transaction (other than a sale of all or substantially all of the Company's assets) in which the holders of the voting securities of the Company immediately prior to the merger or consolidation hold, directly or indirectly, at least a majority of the voting securities in the successor corporation or its parent immediately after the merger or consolidation; (B) a sale, lease, exchange or other transaction in one transaction or a series of related transactions of all or substantially all of the Company's assets to an affiliate of the Company; (C) an initial public offering of any of the Company's securities; (D) a reincorporation of the Company solely to change its jurisdiction; or (E) a transaction undertaken for the primary purpose of creating a holding company that will be owned in substantially the same proportion by the persons who held the Company's securities immediately before such transaction. Notwithstanding the foregoing, if a Change in Control would give rise to a payment or settlement event that constitutes "nonqualified deferred compensation," the transaction or event constituting the Change in Control must also constitute a "change in control event" (as defined in Treasury Regulation §1.409A-3(i)(5)) in order to give rise to the payment or settlement event, to the extent required by Section 409A.

(c) Change in Control Period. "Change in Control Period" shall mean that period of time commencing on the consummation of a Change in Control and ending on the first (1st) anniversary of such Change in Control.

(d) Covered Termination. "Covered Termination" shall mean the termination of Executive's employment by the Company other than for Cause or by Executive for Good Reason.

(e) Good Reason. "Good Reason" means Executive's right to resign from employment with the Company after providing written notice to the Company within sixty (60) days after one or more of the following events occurs without Executive's consent provided such event remains uncured thirty (30) days after Executive delivers to the Company of written notice thereof and Executive's resignation is effective not later than thirty (30) days after the expiration of such thirty (30) day cure period: (i) a material reduction in Executive's job responsibilities or duties, provided that a change in title and responsibilities to Chief Scientific Officer or any change made solely as the result of the Company becoming a subsidiary or business unit of a larger company in a Change in Control shall not on its own give rise to Good Reason; (ii) a material diminution by the Company in Executive's Base Salary in effect immediately prior to such reduction, other than a material diminution that is proportionately applicable to other officers and key employees of the Company generally; or (iii) the forced relocation of the principal place of business at which Executive performs services for the Company that increases Executive's one way commute by fifty (50) miles or more.

(*Signature page follows*)

IN WITNESS WHEREOF, each of the Parties has executed this Agreement, in the case of the Company by its duly authorized member, as of the day and year set forth below.

SPRUCE BIOSCIENCES, INC.

By: /s/ Alan C. Mendelson
Title: Secretary
Date: April 19, 2016

EXECUTIVE

/s/ Alexis Howerton
Name: Alexis R. Howerton, Ph.D.
Date: May 2, 2016

May 24, 2019

Alexis Howerton, Ph.D.

RE: Separation Agreement

Dear Alexis:

This letter sets forth the substance of the separation agreement (the "**Agreement**") that Spruce Biosciences, Inc. (the "**Company**") is offering to you.

1. SEPARATION. Your last day of work with the Company and your employment termination date was May 6, 2019 (the "**Separation Date**"). Effective as of the Separation Date, you are deemed to have resigned from the Board of Directors of the Company (the "**Board**") and from all other positions with the Company.

2. ACCRUED SALARY AND PAID TIME OFF. You acknowledge and agree that the Company paid you all accrued salary, and all accrued and unused vacation time earned through the Separation Date, subject to standard payroll deductions and withholdings. You are entitled to these payments regardless of whether or not you sign this Agreement.

3. SEVERANCE BENEFITS. If you timely sign and return this Agreement to the Company, and you comply fully with your obligations hereunder (including but not limited to your obligations to timely return all Company property under Section 7), then the Company will provide you with the following as your sole severance benefits:

(a) Severance Pay. The Company will pay you, as severance, the equivalent of six months of your base salary in effect as of the Separation Date, subject to standard payroll deductions and withholding (the "**Severance**"). The Severance will be paid in a lump sum payment on the first regular payroll date that is at least one week after the date you sign and return this Agreement to the Company.

(b) Stock Options and Vesting. On June 2, 2016, you were granted an option to purchase 600,000 shares of the Company's common stock (the "**Initial Option**"). On June 13, 2017, you were granted an option to purchase an additional 600,000 shares of the Company's common stock (the "**Second Option,**" and together with the Initial Option, the "**Options**"). The Options were granted pursuant to the Company's 2016 Equity Incentive Plan (the "**Plan**"), stock option agreements and other applicable grant documents (collectively the "**Option Documents**"). Vesting of your Options and any other equity awards, if any, ceased as of the Separation Date. As an additional benefit under this Agreement, the Company will accelerate the vesting of the Options such that the number of shares subject to the Options that would have vested had you remained employed with the Company for an additional six months following the Separation Date will be deemed vested and exercisable as of the Separation Date and any forfeiture restrictions or rights of repurchase thereon shall lapse. Except as expressly modified in this Agreement, the Options shall continue to be governed by t e Option Documents. The Company encourages you to seek independent tax advice concerning the tax status of the Options and the corresponding tax implications of this Agreement and the benefits hereunder.

(c) Post-Termination Exercise Period. Subject to approval by the Board, the post-termination exercise period during which you may exercise your Options to purchase your vested shares following the Separation Date (which, under the terms of such Options, is three months following the Separation Date) shall be extended to May 6, 2022. Additionally, you acknowledge and agree that as a result of the modification of the post-termination exercise period of the Options and the tax rules applicable to incentive stock options, the Options (regardless whether they were intended to qualify as incentive stock options) will hereafter be treated as non-statutory stock options. You have been advised to seek independent tax advice of the consequences of such modification.

4. HEALTH INSURANCE. To the extent provided by the federal COBRA law or, if applicable, state insurance laws (collectively, "**COBRA**"), and by the Company's current group health insurance policies, you will be eligible to continue your group health insurance benefits at your own expense after the Separation Date. Later, you may be able to convert to an individual policy through the provider of the Company's health insurance, if you wish. You will be provided with a separate notice describing your rights and obligations under COBRA laws on or after the Separation Date.

5. NO OTHER COMPENSATION OR BENEFITS. You agree and acknowledge that the benefits provided in this Agreement are in lieu of and supersede any other severance payments, compensation or benefits that you may be entitled to receive from the Company under any agreement, plan or policy (including but not limited to severance benefits under that certain May 2, 2016 employment agreement between you and the Company (the "**Employment Agreement**"). By executing this Agreement, you hereby further agree and acknowledge that any such other severance payments, compensation or benefits are extinguished and you waive all rights you may have to any such benefits. You further acknowledge that, except as provided in this Agreement, you have not earned and are not entitled to receive any additional compensation, severance or benefits on or after the Separation Date.

6. EXPENSE REIMBURSEMENTS. You agree that, within thirty (30) days after the Separation Date, you will submit your final documented expense reimbursement statement reflecting all business expenses you incurred through the Separation Date, if any, for which you seek reimbursement. The Company will reimburse you for these expenses pursuant to its regular business practice.

7. RETURN OF COMPANY PROPERTY. Within twenty (20) days after the Separation Date, you shall return to the Company all Company documents (and all copies thereof) and other Company property in your possession or control. You agree that you will make a diligent search to locate any such documents, property and information within the timeframe referenced above. In addition, if you have used any personally owned computer, server, or e-mail system to receive, store, review, prepare or transmit any confidential or proprietary data, materials or information of the Company, then within twenty (20) days after the Separation Date, you must provide the Company with a computer-useable copy of such information and then permanently delete and expunge such confidential or proprietary information from those systems without retaining any reproductions (in whole or in part); and you agree to provide the Company access to your system, as requested, to verify that the necessary copying and deletion is done. **Your timely compliance** with the provisions of this paragraph is a precondition to your receipt of the severance benefits provided hereunder.

8. PROPRIETARY INFORMATION OBLIGATIONS. You acknowledge your continuing obligations under your Proprietary Information and Inventions Assignment Agreement, a copy of which is attached hereto as **Exhibit A**.

9. CONFIDENTIALITY. The provisions of this Agreement will be held in strictest confidence by you and will not be publicized or disclosed in any manner whatsoever; *provided, however,* that: (a) you may disclose this Agreement to your immediate family; (b) you may disclose this Agreement in confidence to your attorneys, accountants, auditors, tax preparers, and financial advisors; and (c) you may disclose this Agreement insofar as such disclosure may be necessary to enforce its terms or as otherwise required by law. In particular, and without limitation, you agree not to disclose the terms of this Agreement to any current or former Company employee or independent contractor. Notwithstanding the preceding sentences in this paragraph, during the Consulting Period, you are permitted to inform Company employees and/or third parties that you are engaged as a consultant for the Company.

10. MUTUAL NONDISPARAGEMENT. You agree not to disparage the Company or the Company's officers, directors, members of the Company's Board of Directors ("Board"), employees, shareholders, parents, subsidiaries, affiliates, and agents, in any manner likely to be harmful to them or their business, business reputation or personal reputation. The Company agrees that its current members of the Board (Mike Grey, Tiba Aynechi, Niall O'Donnell, and Camilla Simpson) will not, during their tenure as Company Board members, disparage you in any manner likely to be harmful to you or your business reputation or personal reputation. Notwithstanding the foregoing in this paragraph, you and the Company (including each of the Company's Board members) may respond accurately and fully to any request for information if required by legal process or in connection with a government investigation. In addition, nothing in this provision or this Agreement is intended to prohibit or restrain you in any manner from making disclosures that are protected under the whistleblower provisions of federal law or regulation or under other applicable law or regulation. For the avoidance of doubt, statements by the Company (including without limitation each of the current Board members) along the lines that the Company transitioned from you to a new CEO to put in place a leader with more experience to move the Company forward, will not be considered disparaging statements or in any way in violation of this provision.

11. COOPERATION. You agree to cooperate fully with the Company in connection with its actual or contemplated defense, prosecution, or investigation of any claims or demands by or against third parties, or other matters arising from events, acts, or failures to act that occurred during the period of your employment by the Company. Such cooperation includes, without limitation, making yourself available to the Company upon reasonable notice, without subpoena, to provide complete, truthful and accurate information in witness interviews, depositions, and trial testimony. The Company will reimburse you for reasonable out-of-pocket expenses you incur in connection with any such cooperation and will make reasonable efforts to accommodate your scheduling needs.

12. RELEASE OF CLAIMS.

(a) General Release. In exchange for the consideration provided to you under this Agreement to which you would not otherwise be entitled, you hereby generally and completely release the Company, and its affiliated, related, parent and subsidiary entities, and its and their current and former directors, officers, employees, shareholders, partners, agents, attorneys, predecessors, successors, insurers, affiliates, and assigns (collectively, the "**Released Parties**") from any and all claims, liabilities and obligations, both known and unknown, that arise out of or are in any way related to events, acts, conduct, or omissions occurring prior to or on the date you sign this Agreement (collectively, the "**Released Claims**").

(b) Scope of Release. The Released Claims include, but are not limited to: (i) all claims arising out of or in any way related to your employment with the Company, or the termination of that employment; (ii) all claims related to your compensation or benefits from the Company, including salary, bonuses, commissions, vacation, paid time off, sick time, expense reimbursements, severance pay, fringe benefits, stock, stock options, or any other ownership, equity, or profits interests in the Company; (iii) all claims for breach of contract (including without limitation breach of the Employment Agreement), wrongful termination, and breach of the implied covenant of good faith and fair dealing; (iv) all tort claims, including claims for fraud, defamation, emotional distress, and discharge in violation of public policy; and (v) all federal, state, and local statutory claims, including claims for discrimination, harassment, retaliation, attorneys' fees, or other claims arising under the federal Civil Rights Act of 1964 (as amended), the federal Americans with Disabilities Act of 1990, the California Labor Code (as amended), and the California Fair Employment and Housing Act (as amended).

(c) Section 1542 Waiver. YOU UNDERSTAND THAT THIS AGREEMENT INCLUDES A RELEASE OF ALL KNOWN AND UNKNOWN CLAIMS. In giving the release herein, which includes claims which may be unknown to you at present, you acknowledge that you have read and understand Section 1542 of the California Civil Code, which reads as follows:

"A general release does not extend to claims which the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."

You hereby expressly waive and relinquish all rights and benefits under that section and any law of any other jurisdiction of similar effect with respect to your release of any unknown or unsuspected claims herein.

(d) Excluded Claims. Notwithstanding the foregoing, the following are not included in the Released Claims (the "**Excluded Claims**"): (i) any rights or claims for indemnification you may have pursuant to any written indemnification agreement with the Company to which you are a party or under applicable law; (ii) any rights which are not waivable as a matter of law; and (iii) any claims for breach of this Agreement. You hereby represent and warrant that, other than the Excluded Claims, you are not aware of any claims you have or might have against any of the Released Parties that are not included in the Released Claims. You

understand that nothing in this Agreement limits your ability to file a charge or complaint with the Equal Employment Opportunity Commission, the Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the Securities and Exchange Commission or any other federal, state or local governmental agency or commission ("**Government Agencies**"). You further understand this Agreement does not limit your ability to communicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. While this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission, you understand and agree that, to maximum extent permitted by law, you are otherwise waiving any and all rights you may have to individual relief based on any claims that you have released and any rights you have waived by signing this Agreement.

13. NO ADMISSIONS. The promises and payments in consideration of this Agreement shall not be construed to be an admission of any liability or obligation by either party to the other party, and neither party makes any such admission.

14. REPRESENTATIONS. You hereby represent that you have been paid all compensation owed and for all hours worked, have received all the leave and leave benefits and protections for which you are eligible, pursuant to the Family and Medical Leave Act or otherwise, and have not suffered any on-the-job injury for which you have not already filed a claim.

15. MISCELLANEOUS. This Agreement, including **Exhibit A**, constitutes the complete, final and exclusive embodiment of the entire agreement between you and the Company with regard to the subject matter hereof. It is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other agreements, promises, warranties or representations concerning its subject matter. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determination shall not affect any other provision of this Agreement and the provision in question shall be modified so as to be rendered enforceable in a manner consistent with the intent of the parties insofar as possible under applicable law. This Agreement shall be construed and enforced in accordance with the laws of the State of California without regard to conflicts of law principles. Any ambiguity in this Agreement shall not be construed against either party as the drafter. Any waiver of a breach of this Agreement, or rights hereunder, shall be in writing and shall not be deemed to be a waiver of any successive breach or rights hereunder. The prevailing party in any action brought for breach of this Agreement shall be entitled to recover reasonable attorneys' fees and costs incurred in the action from the non-prevailing party. This Agreement may be executed in counterparts which shall be deemed to be part of one original, and facsimile and signatures transmitted by PDF shall be equivalent to original signatures.

If this Agreement is acceptable to you, please sign below and return the original to me within seven days. The Company's offer contained herein will automatically expire if we do not receive the fully signed Agreement within this timeframe.

We wish you the best in your future endeavors.

Sincerely,

By: /s/ Mike Grey
Mike Grey
Chairman of the Board

Exhibit A – Proprietary Information and Inventions Assignment Agreement

I HAVE READ, UNDERSTAND AND AGREE FULLY TO THE FOREGOING AGREEMENT:

/s/ Alexis Howerton, Ph.D.	05/24/19
Alexis Howerton, Ph.D.	**Date**

SPRUCE BIOSCIENCES, INC.
EMPLOYMENT AGREEMENT

This Employment Agreement (the "Agreement") is made and entered into by and between Michael Huang, MD. ("Executive") and Spruce Biosciences, Inc. (the "Company") (together referred to herein as the "Parties"), effective as of May 16, 2017 (the "Effective Date"). This Agreement supersedes in its entirety any other agreement to which the Company is a party with respect to Executive's employment with the Company, except for the Proprietary Information and Inventions Assignment Agreement between the Company and Executive (the "Confidential Information Agreement").

RECITALS

A. The Company desires to assure itself of the services of Executive by engaging Executive to perform services under the terms hereof.

B. Executive desires to provide services to the Company on the terms herein provided.

C. Certain capitalized terms used in this Agreement are defined in Section 11 below.

In consideration of the foregoing, and for other good and valuable consideration, including the respective covenants and agreements set forth below, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. **Employment**.

(a) General. The Company shall employ Executive as a full-time employee of the Company effective as of the Effective Date for the period and in the position set forth in this Section 1, and upon the other terms and conditions herein provided.

(b) Position and Duties. Effective on the Effective Date, Executive: (i) shall serve as the Chief Medical Officer of the Company, with responsibilities, duties and authority usual and customary for such position, subject to direction by the Company's Chief Executive Officer (the "CEO"); (ii) shall report directly to the CEO; and (iii) agrees promptly and faithfully to comply with all present and future policies, requirements, directions, requests and rules and regulations of the Company in connection with the Company's business.

(c) Exclusivity. Except with the prior written approval of the Board (which the Board may grant or withhold in its sole and absolute discretion), Executive shall devote Executive's entire working time, attention and energies to the business of the Company and shall not (i) accept any other employment or consultancy; (ii) serve on the board of directors or similar body of any other entity; or (iii) engage, directly or indirectly, in any other business activity (whether or not pursued for pecuniary advantage) that is or may be competitive with, or that

might place Executive in a competing position to, that of the Company or any of its subsidiaries or affiliates. Notwithstanding the foregoing, Executive may devote reasonable time to unpaid activities such as supervision of personal investments and activities involving professional,

charitable, educational, religious, civic and similar types of activities, speaking engagements and membership on committees, provided such activities do not individually or in the aggregate interfere with the performance of Executive's duties under this Agreement, violate the Company's standards of conduct then in effect or raise a conflict under the Company's conflict of interest policies.

2. **Compensation and Related Matters**.

(a) Base Salary. Executive's annual base salary (the "Base Salary") will be $335,000, less payroll deductions and all required withholdings, payable in accordance with the Company's normal payroll practices. The Board or a committee of the Board shall review Executive's Base Salary periodically.

(b) Bonus. If and when the Company adopts a formal incentive performance bonus program, Executive will be eligible to receive an annual performance bonus pursuant to such program, with a target achievement of twenty-five percent (25%) of Executive's then-Base Salary (the "Annual Bonus"). Any Annual Bonus amount payable shall be based on the achievement of performance goals to be established by the Company and shall be subject to the terms and conditions of the adopted formal bonus program. The Board or a committee of the Board shall review Executive's Annual Bonus periodically. Any Annual Bonus earned by Executive pursuant to this section shall be paid to Executive, less authorized deductions and required withholding obligations, within three months following the end of the fiscal year to which the bonus relates. Executive hereby acknowledges and agrees that nothing contained herein confers upon Executive any right to an Annual Bonus in any calendar year, and that whether and/or when the Company adopts a formal performance bonus program and whether the Company pays Executive an Annual Bonus under such program will be determined by the Company in its sole discretion.

(c) Equity Awards.

(i) Stock Option. In connection with entering into this Agreement, Executive shall be granted, subject to approval by the Board, an option to purchase 450,000 shares of the Company's common stock (the "Option") with an exercise price per share equal to the fair market value of a share of the Company's common stock on the date of grant (as determined by the Board in its sole discretion), *provided* that Executive is employed by the Company on the date of grant. Subject to Executive's continued service with the Company through the applicable vesting date, 25% of the shares subject to the Option will be vest on the first anniversary of the Effective Date and 1/48th of the total number of shares initially subject to the Option will vest on each monthly anniversary thereafter. The Option, and any shares acquired upon exercise, will be subject to the terms and conditions of the Company's equity incentive plan and an option agreement to be entered into between Executive and the Company.

(d) Benefits. Executive may participate in such employee and executive benefit plans and programs as the Company may from time to time offer to provide to its executives, subject to the terms and conditions of such plans. Notwithstanding the foregoing, nothing herein is intended, or shall be construed, to require the Company to institute or continue any, or any particular, plan or benefits.

(e) Vacation. Executive shall be entitled to vacation, sick leave, holidays and other paid time-off benefits provided by the Company from time to time which are applicable to the Company's executive officers in accordance with Company policy. The opportunity to take paid time off is contingent upon Executive's workload and ability to manage Executive's schedule.

(f) Business Expenses. The Company shall reimburse Executive for all reasonable, documented, out-of-pocket travel and other business expenses incurred by Executive in the performance of Executive's duties to the Company in accordance with the Company's applicable expense reimbursement policies and procedures as in effect from time to time.

3. **Termination**.

(a) At-Will Employment. The Company and Executive acknowledge that Executive's employment is and shall continue to be "at-will," as defined under applicable law. This means that it is not for any specified period of time and can be terminated by Executive or by the Company at any time, with or without advance notice, and for any or no particular reason or cause. It also means that Executive's job duties, title and responsibility and reporting level, work schedule, compensation and benefits, as well as the Company's personnel policies and procedures, may be changed with prospective effect, with or without notice, at any time in the sole discretion of the Company. This "at-will" nature of Executive's employment shall remain unchanged during Executive's tenure as an employee and may not be changed, except in an express writing signed by Executive and a duly authorized member of the Board. If Executive's employment terminates for any reason, Executive shall not be entitled to any payments, benefits, damages, awards or compensation other than as provided by this Agreement.

(b) Deemed Resignation. Upon termination of Executive's employment for any reason, Executive shall be deemed to have resigned from all offices and directorships, if any, then held with the Company or any of its affiliates, and, at the Company's request, Executive shall execute such documents as are necessary or desirable to effectuate such resignations.

4. **Obligations upon Termination of Employment**.

(a) Executive's Obligations. Executive hereby acknowledges and agrees that all Personal Property (as defined below) and equipment furnished to, or prepared by, Executive in the course of, or incident to, Executive's employment, belongs to the Company and shall be promptly returned to the Company upon termination of Executive's employment (and will not be kept in Executive's possession or delivered to anyone else). For purposes of this Agreement, "Personal Property" includes, without limitation, all books, manuals, records, reports, notes, contracts, lists, blueprints, and other documents, or materials, or copies thereof (including computer files), keys, building card keys, company credit cards, telephone calling cards, computer hardware and software, cellular and portable telephone equipment, personal digital assistant (PDA) devices and all other proprietary information relating to the business of the Company or its subsidiaries or affiliates. Following termination, Executive shall not retain any written or other tangible material containing any proprietary information of the Company or its subsidiaries or affiliates. In addition, Executive shall continue to be subject to the Confidential Information Agreement. The representations and warranties contained herein and Executive's obligations under Subsection 4(a) and the Confidential Information Agreement hereof shall survive the termination of Executive's employment and the termination of this Agreement.

(b) Payments of Accrued Obligations upon Termination of Employment. Upon a termination of Executive's employment for any reason, Executive (or Executive's estate or legal representative, as applicable) shall be entitled to receive, within ten (10) days after the date Executive terminates employment with the Company (or such earlier date as may be required by applicable law): (i) any portion of Executive's Base Salary earned through Executive's termination date not theretofore paid, (ii) any expenses owed to Executive under Section 2(f) above, (iii) any accrued but unused vacation pay owed to Executive pursuant to Section 2(e) above, and (iv) any amount arising from Executive's participation in, or benefits under, any employee benefit plans, programs or arrangements under Section 2(d) above, which amounts shall be payable in accordance with the terms and conditions of such employee benefit plans, programs or arrangements.

(c) Severance Payments upon Termination Without Cause Other Than During a Change in Control Period. If Executive experiences a Covered Termination other than during a Change in Control Period, and if Executive executes a general release of all claims against the Company and its affiliates in a form acceptable to the Company (a "Release of Claims") that becomes effective and irrevocable within sixty (60) days, or such shorter period of time specified by the Company, following such Covered Termination, then, in addition to any accrued obligations payable under Section 4(b) above, the Company shall provide Executive with the following:

(i) Continued Healthcare. The Company shall notify Executive of any right to continue group health plan coverage sponsored by the Company or an affiliate of the Company immediately prior to Executive's date of termination pursuant to the provisions of the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"). If Executive elects to receive such continued healthcare coverage, the Company shall directly pay, or reimburse Executive for, the premium for Executive and Executive' s covered dependents, less the amount of Executive's monthly premium contributions for such coverage prior to termination, for the period commencing on the first day of the first full calendar month following the date the Release of Claims becomes effective and irrevocable through the earlier of (A) the last day of the forth (4th) full calendar month following the date the Release of Claims becomes effective and irrevocable and (B) the date Executive and Executive's covered dependents, if any, become eligible for healthcare coverage under another employer's plan(s). Executive shall notify the Company immediately if Executive becomes covered by a group health plan of a subsequent employer. After the Company ceases to pay premiums pursuant to the preceding sentence, Executive may, if eligible, elect to continue healthcare coverage at Executive's expense in accordance the provisions of COBRA.

(d) Severance Payments upon a Covered Termination During a Change in Control Period. If Executive experiences a Covered Termination during a Change in Control Period, and if Executive executes a Release of Claims that becomes effective and irrevocable within sixty (60) days, or such shorter period of time specified by the Company, following such Covered Termination, then, in addition to any accrued obligations payable under Section 4(b) above, then the Company shall provide Executive with the following (i) the severance payments and benefits provided in Section 4(c)(i) and (ii) each outstanding equity award held by Executive shall automatically become vested and, if applicable, exercisable and any forfeiture restrictions or rights of repurchase thereon shall lapse, in each case, with respect to one hundred percent (100%) of the then-unvested shares subject to such outstanding award effective as of immediately prior to such termination date.

(e) No Other Severance. The provisions of this Section 4 shall supersede in their entirety any severance payment or other arrangement provided by the Company, including, without limitation, any severance plan/policy of the Company.

(f) No Requirement to Mitigate; Survival. Executive shall not be required to mitigate the amount of any payment provided for under this Agreement by seeking other employment or in any other manner. Notwithstanding anything to the contrary in this Agreement, the termination of Executive's employment shall not impair the rights or obligations of any party.

(g) Certain Reductions. The Company shall reduce Executive's severance benefits under this Agreement, in whole or in part, by any other severance benefits, pay in lieu of notice, or other similar benefits payable to Executive by the Company in connection with Executive's termination, including but not limited to payments or benefits pursuant to (i) any applicable legal requirement, including, without limitation, the Worker Adjustment and Retraining Notification Act, or (ii) any Company policy or practice providing for Executive to remain on the payroll without being in active service for a limited period of time after being given notice of the termination of Executive's employment. The benefits provided under this Agreement are intended to satisfy, to the greatest extent possible, any and all statutory obligations that may arise out of Executive's termination of employment. Such reductions shall be applied on a retroactive basis, with severance benefits previously paid being recharacterized as payments pursuant to the Company's statutory obligation.

5. **Limitation on Payments**.

(a) Notwithstanding anything in this Agreement to the contrary, if any payment or distribution Executive would receive pursuant to this Agreement or otherwise ("Payment") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the "Code"), and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then the Company shall cause to be determined, before any amounts of the Payment are paid to Executive, which of the following alternative forms of payment would maximize Executive's after-tax proceeds: (A) payment in full of the entire amount of the Payment (a "Full Payment"), or (B) payment of only a part of the Payment so that Executive receives that largest Payment possible without being subject to the Excise Tax (a "Reduced Payment"), whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the Excise Tax (all computed at the highest marginal rate, net of the maximum reduction in federal income taxes which could be obtained from a deduction of such state and local taxes), results in Executive's receipt, on an after-tax basis, of the greater amount of the Payment, notwithstanding that all or some portion the Payment may be subject to the Excise Tax.

(b) If a Reduced Payment is made pursuant to this Section 5, (i) the Payment shall be paid only to the extent permitted under the Reduced Payment alternative, and Executive shall have no rights to any additional payments and/or benefits constituting the Payment, and (ii) reduction in payments and/or benefits will occur in the following order: (1) reduction of cash payments; (2) cancellation of accelerated vesting of equity awards other than stock options; (3) cancellation of accelerated vesting of stock options; and (4) reduction of other benefits payable to Executive. In the event that acceleration of compensation from Executive's equity awards is to be reduced, such acceleration of vesting shall be canceled in the reverse order of the date of grant.

(c) All determinations required to be made under this Section 5 shall be made by such adviser as may be selected by the Company, provided, that the adviser's determination shall be made based upon "substantial authority" within the meaning of Section 6662 of the Code. The adviser shall provide its determination, together with detailed supporting calculations and documentation, to Executive and the Company within fifteen (15) business days following the date of termination of Executive's employment, if applicable, or such other time as requested by Executive (provided, that Executive reasonably believes that any of the Payments may be subject to the Excise Tax) or the Company. All reasonable fees and expenses of the adviser in reaching such a determination shall be borne solely by the Company.

6. **Successors**.

(a) Company's Successors. Any successor to the Company (whether direct or indirect and whether by purchase, merger, consolidation, liquidation or otherwise) to all or substantially all of the Company's business and/or assets shall assume the obligations under this Agreement and agree expressly to perform the obligations under this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations in the absence of a succession. For all purposes under this Agreement, the term "Company" shall include any successor to the Company's business and/or assets which executes and delivers the assumption agreement described in this Section 6(a) or which becomes bound by the terms of this Agreement by operation of law.

(b) Executive's Successors. The terms of this Agreement and all rights of Executive hereunder shall inure to the benefit of, and be enforceable by, Executive's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

7. **Notices**. Notices and all other communications contemplated by this Agreement shall be in writing and shall be deemed to have been duly given when personally delivered or one day following mailing via Federal Express or similar overnight courier service. In the case of Executive, mailed notices shall be addressed to Executive at Executive's home address that the Company has on file for Executive. In the case of the Company, mailed notices shall be addressed to its corporate headquarters, and all notices shall be directed to the attention of the General Counsel of the Company.

8. **Dispute Resolution**. To ensure the timely and economical resolution of disputes that arise in connection with this Agreement, Executive and the Company agree that any and all controversies, claims and disputes arising out of or relating to this Agreement, including without limitation any alleged violation of its terms, shall be resolved by final and binding arbitration before a single neutral arbitrator in San Francisco County, California, in accordance with the

Employment Dispute Resolution Rules of the American Arbitration Association ("AAA"). The arbitration shall be commenced by filing a demand for arbitration with the AAA within fourteen (14) days after the filing Party has given notice of such breach to the other Party. The arbitrator shall award the prevailing Party attorneys' fees and expert fees, if any. Notwithstanding the foregoing, it is acknowledged that it will be impossible to measure in money the damages that would be suffered if the Parties fail to comply with any of the obligations imposed on them under Section 10(a) hereof, and that in the event of any such failure, an aggrieved person will be irreparably damaged and will not have an adequate remedy at law. Any such person shall, therefore, be entitled to injunctive relief, including specific performance, to enforce such obligations, and if any action shall be brought in equity to enforce any of the provisions of Section 10(a) of this Agreement, none of the Parties hereto shall raise the defense that there is an adequate remedy at law.

9. **Section 409A**. The intent of the Parties is that the payments and benefits under this Agreement comply with or be exempt from Section 409A of the Code and the Department of Treasury regulations and other interpretive guidance issued thereunder, including without limitation any such regulations or other guidance that may be issued after the Effective Date, ("Section 409A") and, accordingly, to the maximum extent permitted, this Agreement shall be interpreted to be in compliance therewith. If the Company determines that any provision of this Agreement would cause Executive to incur any additional tax or interest under Section 409A (with specificity as to the reason therefor), the Company and Executive shall take commercially reasonable efforts to reform such provision to try to comply with or be exempt from Section 409A through good faith modifications to the minimum extent reasonably appropriate to conform with Section 409A, *provided* that any such modifications shall not increase the cost or liability to the Company. To the extent that any provision hereof is modified in order to comply with or be exempt from Section 409A, such modification shall be made in good faith and shall, to the maximum extent reasonably possible, maintain the original intent and economic benefit to Executive and the Company of the applicable provision without violating the provisions of Section 409A.

(a) Separation from Service. Notwithstanding any provision to the contrary in this Agreement, no amount deemed deferred compensation subject to Section 409A of the Code shall be payable pursuant to Section 4 above unless Executive's termination of employment constitutes a "separation from service" with the Company within the meaning of Section 409A ("Separation from Service") and, except as provided under Section 9(b) below, any such amount shall not be paid, or in the case of installments, commence payment, until the sixtieth (60th) day following Executive's Separation from Service. Any installment payments that would have been made to Executive during the sixty (60) day period immediately following Executive's Separation from Service but for the preceding sentence shall be paid to Executive on the sixtieth (60th) day following Executive's Separation from Service and the remaining payments shall be made as provided in this Agreement.

(b) Specified Employee. Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed at the time of her Separation from Service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (i)

the expiration of the six (6)-month period measured from the date of Executive's Separation from Service or (ii) the date of Executive's death. Upon the first day of the seventh (7th) month following the date of the Executive's Separation from Service, all payments deferred pursuant to this Section 9(b) shall be paid in a lump sum to Executive, and any remaining payments due under this Agreement shall be paid as otherwise provided herein.

(c) Expense Reimbursements. To the extent that any reimbursements payable pursuant to this Agreement are subject to the provisions of Section 409A, any such reimbursements payable to Executive pursuant to this Agreement shall be paid to Executive no later than December 31 of the year following the year in which the expense was incurred, the amount of expenses reimbursed in one year shall not affect the amount eligible for reimbursement in any subsequent year, and Executive's right to reimbursement under this Agreement will not be subject to liquidation or exchange for another benefit.

(d) Installments. For purposes of Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive's right to receive any installment payments under this Agreement shall be treated as a right to receive a series of separate payments and, accordingly, each such installment payment shall at all times be considered a separate and distinct payment.

10. **Miscellaneous Provisions**.

(a) Confidentiality Agreement. As a condition of Executive's employment with the Company, Executive shall abide by the Confidential Information Agreement.

(b) Withholdings and Offsets. The Company shall be entitled to withhold from any amounts payable under this Agreement any federal, state, local or foreign withholding or other taxes or charges which the Company is required to withhold. The Company shall be entitled to rely on an opinion of counsel if any questions as to the amount or requirement of withholding shall arise. If Executive is indebted to the Company at her termination date, the Company reserves the right to offset any severance payments under this Agreement by the amount of such indebtedness.

(c) Waiver. No provision of this Agreement shall be modified, waived or discharged unless the modification, waiver or discharge is agreed to in writing and signed by Executive and by an authorized officer of the Company (other than Executive). No waiver by either Party of any breach of, or of compliance with, any condition or provision of this Agreement by the other Party shall be considered a waiver of any other condition or provision or of the same condition or provision at another time.

(d) Whole Agreement. This Agreement and the Confidential Information Agreement represent the entire understanding of the Parties hereto with respect to the subject matter hereof and supersede all prior arrangements and understandings regarding same.

(e) Amendment. This Agreement cannot be amended or modified except by a written agreement signed by Executive and an authorized member of the Company.

(f) Choice of Law. The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of California.

(g) Severability. The finding by a court of competent jurisdiction of the unenforceability, invalidity or illegality of any provision of this Agreement shall not render any other provision of this Agreement unenforceable, invalid or illegal. Such court shall have the authority to modify or replace the invalid or unenforceable term or provision with a valid and enforceable term or provision which most accurately represents the intention of the Parties hereto with respect to the invalid or unenforceable term or provision.

(h) Interpretation; Construction. The headings set forth in this Agreement are for convenience of reference only and shall not be used in interpreting this Agreement. This Agreement has been drafted by legal counsel representing the Company, but Executive has been encouraged to consult with, and has consulted with, Executive's own independent counsel and tax advisors with respect to the terms of this Agreement. The Parties hereto acknowledge that each Party hereto and its counsel has reviewed and revised, or had an opportunity to review and revise, this Agreement, and any rule of construction to the effect that any ambiguities are to be resolved against the drafting Party shall not be employed in the interpretation of this Agreement.

(i) Representations; Warranties. Executive represents and warrants that Executive is not restricted or prohibited, contractually or otherwise, from entering into and performing each of the terms and covenants contained in this Agreement, and that Executive's execution and performance of this Agreement will not violate or breach any other agreements between Executive and any other person or entity and that Executive has not engaged in any act or omission that could be reasonably expected to result in or lead to an event constituting "Cause" for purposes of this Agreement.

(j) Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instrument.

11. **Definition of Terms**. The following terms referred to in this Agreement shall have the following meanings:

(a) Cause. "Cause" means (i) Executive's unauthorized use or disclosure of confidential information or trade secrets of the Company or any material breach of a written agreement between Executive and the Company, including without limitation a material breach of this Agreement, the Confidential Information Agreement or any other similar agreement; (ii) Executive's commission of, indictment for or the entry of a plea of guilty or nolo contendere by Executive to, a felony under the laws of the United States or any state thereof or any crime involving dishonesty or moral turpitude (or any similar crime in any jurisdiction outside the United States); (iii) Executive's negligence or willful misconduct in the performance of Executive's duties or Executive's willful or repeated failure or refusal to substantially perform assigned duties; (iv) any act of fraud, embezzlement, material misappropriation or dishonesty committed by Executive's against the Company; or (v) any acts, omissions or statements by Executive which the Company determines to be materially detrimental or damaging to the reputation, operations, prospects or business relations of the Company.

(b) Change in Control. "Change in Control" means (i) a merger or consolidation of the Company with or into any other corporation or other entity or person, (ii) a sale, lease, exchange or other transfer in one transaction or a series of related transactions of all or substantially all of the Company's assets, or (iii) any other transaction, including the sale by the Company of new shares of its capital stock or a transfer of existing shares of capital stock of the Company, the result of which is that a third party that is not an affiliate of the Company or its stockholders (or a group of third parties not affiliated with the Company or its stockholders) immediately prior to such transaction acquires or holds capital stock of the Company representing a majority of the Company's outstanding voting power immediately following such transaction; *provided* that the following events shall not constitute a "Change in Control": (A) a transaction (other than a sale of all or substantially all of the Company's assets) in which the holders of the voting securities of the Company immediately prior to the merger or consolidation hold, directly or indirectly, at least a majority of the voting securities in the successor corporation or its parent immediately after the merger or consolidation; (B) a sale, lease, exchange or other transaction in one transaction or a series of related transactions of all or substantially all of the Company's assets to an affiliate of the Company; (C) an initial public offering of any of the Company's securities; (D) a reincorporation of the Company solely to change its jurisdiction; or (E) a transaction undertaken for the primary purpose of creating a holding company that will be owned in substantially the same proportion by the persons who held the Company's securities immediately before such transaction. Notwithstanding the foregoing, if a Change in Control would give rise to a payment or settlement event that constitutes "nonqualified deferred compensation," the transaction or event constituting the Change in Control must also constitute a "change in control event" (as defined in Treasury Regulation §1.409A-3(i)(5)) in order to give rise to the payment or settlement event, to the extent required by Section 409A.

(c) Change in Control Period. "Change in Control Period" shall mean that period of time commencing on the consummation of a Change in Control and ending on the first (1st) anniversary of such Change in Control.

(d) Covered Termination. "Covered Termination" shall mean the termination of Executive's employment by the Company other than for Cause or by Executive for Good Reason.

(e) Good Reason. "Good Reason" means Executive's right to resign from employment with the Company after providing written notice to the Company within sixty (60) days after one or more of the following events occurs without Executive's consent provided such event remains uncured thirty (30) days after Executive delivers to the Company of written notice thereof and Executive's resignation is effective not later than thirty (30) days after the expiration of such thirty (30) day cure period: (i) a material reduction in Executive's job responsibilities or duties as Chief Executive Officer, *provided* that any change made solely as the result of the Company becoming a subsidiary or business unit of a larger company in a Change in Control shall not on its own give rise to Good Reason; (ii) a material diminution by the Company in Executive's Base Salary in effect immediately prior to such reduction, other than a material diminution that is proportionately applicable to other officers and key employees of the Company generally; or (iii) the forced relocation of the principal place of business at which Executive performs services for the Company that increases Executive's one way commute by fifty (50) miles or more.

(Signature page follows)

IN WITNESS WHEEOF, each of the Parties has executed this Agreement, in the case of the Company by its duly authorized member, as of the day and year set forth below.

SPRUCE BIOSCIENCES, INC.

By: /s/ Alexis Howerton
Title: President & CEO

Date: 05/16/2017

EXECUTIVE

/s/ Michael Huang, MD
Name: Michael Huang, MD

Date:: May 16, 2017

February 26, 2020

Michael Huang, M.D.

Re: Separation Agreement

Dear Mike:

This letter sets forth the terms of the separation agreement that Spruce Biosciences, Inc. (the "**Company**") is offering to aid in your employment transition.

1. Separation Date; Final Pay. Your last day of work with the Company and your employment termination date is February 26, 2020 (the "**Separation Date**"). On that day you will be sent a check in the amount of $8,053.92, representing all remaining accrued salary and all accrued and unused vacation earned through the Separation Date, subject to standard payroll deductions and withholdings. You are entitled to this payment regardless of whether or not you sign this Agreement.

2. Severance Benefits. If on or within twenty-one (21) days after you receive this Agreement you sign and return this Agreement to the Company. allow the releases set forth herein to become effective, and you comply fully with your obligations hereunder (including but not limited to your obligations to timely return all Company property under Section 6), the Company will provide you with the following severance benefits (the "**Severance Benefits**"):

(a) **Severance Pay**. The Company will pay you, as severance, the equivalent of six months of your base salary in effect as of the Separation Date, subject to standard payroll deductions and withholding, as well as any performance based bonus associated with your work at the company (the "**Severance**"). The Severance will be paid in a lump sum payment on the first regular payroll date following the Effective Date (as defined in Section 10(c)).

(b) **Stock Options and Vesting**. On July 27, 2017, you were granted an option to purchase 450,000 shares of the Company's common stock (the "**Initial Option**"). On July 23, 2019, you were granted an option to purchase an additional 100,000 shares of the Company's common stock (the "**Second Option**," and together with the Initial Option, the "Options"). The Options were granted pursuant to the Company's 2016 Equity Incentive Plan, stock option agreements and other applicable grant documents (collectively the "**Option Documents**"). Vesting of your Options and any other equity awards, if any, will cease as of the Separation Date. Except as expressly modified in this Agreement, the Options shall continue to be governed by the Option Documents.

(c) **Post-Termination Exercise Period**. Subject to approval by the Board, the post-termination exercise period during which you may exercise your Options to purchase your vested shares following the Separation Date (which, under the terms of such Options, is three months following the Separation Date) shall be extended

to December 31, 2020. Additionally, you acknowledge and agree that as a result of the modification of the post-termination exercise period of the Options and the tax rules applicable to incentive stock options the Options (regardless whether they were intended to qualify as incentive stock options) will hereafter be treated as non-statutory stock options. You are advised to seek independent tax advice of the consequences of such modification.

3. COBRA. To the extent provided by the federal COBRA law or, if applicable, state insurance laws (collectively, "**COBRA**"), and by the Company's current group health insurance policies, you will be eligible to continue your group health insurance benefits at your own expense after the Separation Date. Later, you may be able to convert to an individual policy through the provider of the Company's health insurance, if you wish. You will be provided with a separate notice describing your rights and obligations under COBRA laws on or after the Separation Date. If you elect to receive such continued healthcare coverage, the Company will directly pay, or reimburse you for the premium for you and your covered dependents, less the amount of your monthly premium contributions for such coverage prior to the Separation Date, for the period commencing on the first day of the first full calendar month following the Effective Date through the earlier of (A) the last day of the fourth full calendar month following the Effective Date and (B) the date you and your covered dependents, if any, become eligible for healthcare coverage under another employer's plan(s). You will notify the Company immediately if you become covered by a group health plan of a subsequent employer.

4. No Other Compensation or Benefits. You agree and acknowledge that the benefits provided in this Agreement are in lieu of and supersede any other severance payments, compensation or benefits that you may be entitled to receive from the Company under any agreement, plan or policy (including but not limited to severance benefits under that certain May 16, 2017 employment agreement between you and the Company, and under the Company's Severance and Change in Control Policy). By executing this Agreement, you hereby further agree and acknowledge that any such other severance payments, compensation or benefits are extinguished and you waive all rights you may have to any such benefits. You further acknowledge that, except as provided in this Agreement, you have not earned and are not entitled to receive any additional compensation, severance or benefits on or after the Separation Date.

5. Expense Reimbursements. You agree that, within ten (10) days after the Separation Date, you will submit your final documented expense reimbursement statement reflecting all business expenses you incurred through the Separation Date, if any, for which you seek reimbursement. The Company will reimburse you for these expenses pursuant to its regular business practice.

6. Return of Company Property. On the Separation Date, you shall return to the Company all Company documents (and all copies thereof) and other Company property in your possession or control, including but not limited to Company files, notes, drawings, records, plans, forecasts, reports, studies, analyses, proposals, agreements, financial information, research and development information, sales and marketing information. customer lists, prospect information, pipeline reports, sales reports, operational and personnel information, specifications, code, software, databases, computer-recorded information, tangible property and equipment (including, but not limited to, computers, facsimile machines, mobile telephones, servers, credit cards. entry cards, identification badges and keys), and any materials of any kind which contain or embody any

confidential or proprietary information of the Company (and all reproductions thereof in whole or in part). You agree that you will make a diligent search to locate any such documents, property and information within the timeframe referenced above. In addition, if you have used any personally-owned computer, server, or email system to receive, store, review, prepare or transmit any confidential or proprietary data, materials or information of the Company, then within five (5) business days after the Separation Date. or earlier if requested by the Company, you must provide the Company with a computer-useable copy of such information and then permanently delete and expunge such confidential or proprietary information from those systems without retaining any reproductions (in whole or in part); and you agree to provide the Company access to your system. as requested, to verify that the necessary copying and deletion is done.

7. Confidential Information Obligations. You acknowledge and reaffirm your continuing obligations under your Proprietary Information and Inventions Assignment Agreement (the "**Confidentiality Agreement**"), including your obligations not to use or disclose any confidential or proprietary information of the Company. A copy of your Confidentiality Agreement is attached hereto as Exhibit A.

8. Confidentiality. The provisions of this Agreement will be held in strictest confidence by you and will not be publicized or disclosed in any manner whatsoever: provided, however, that: (a) you may disclose this Agreement in confidence to your immediate family; (b) you may disclose this Agreement in confidence to your attorneys. accountants, auditors, tax preparers, and financial advisors; and (c) you may disclose this Agreement insofar as such disclosure may be necessary to enforce its terms or as otherwise required by law. In particular, and without limitation. you agree not to disclose the terms of this Agreement to any current or former employee, consultant or independent contractor of the Company.

9. Nondisparagement. You agree not to disparage the Company or the Company's officers, directors, employees, shareholders. parents, subsidiaries, affiliates, and agents, in any manner likely to be harmful to them or their business, business reputation or personal reputation; provided that you may respond accurately and fully to any question, inquiry or request for information to the extent required by legal process.

10. Release of Claims.

(a) **General Release**. In exchange for the consideration provided to you under this Agreement to which you would not otherwise be entitled you hereby generally and completely release the Company, and its affiliated, related, parent and subsidiary entities, and its and their current and former directors, officers, employees, shareholders, partners, agents, attorneys, predecessors, successors, insurers, affiliates, and assigns (collectively, the "**Released Parties**") from any and all claims, liabilities and obligations, both known and unknown, that arise out of or are in any way related to events, acts, conduct, or omissions occurring prior to or on the date you sign this Agreement (collectively. the "**Released Claims**").

(b) **Scope of Release**. The Released Claims include, but are not limited to: (i) all claims arising out of or in any way related to your employment with the Company, or the termination of that employment; (ii) all claims related to your compensation or benefits from the Company, including salary. bonuses, commissions, vacation, expense reimbursements, severance pay, fringe benefits, stock, stock options. or any other ownership, equity, or profits interests in the Company; (iii) all claims for breach of contract. wrongful termination, and breach of the implied covenant of good faith and fair dealing; (iv) all tort claims, including claims for fraud, defamation. emotional distress, and discharge in violation of public policy; and (v) all federal, state, and local statutory claims, including claims for discrimination, harassment, retaliation, attorneys' fees, or other claims arising under the federal Civil Rights Act of 1964, the federal Americans with Disabilities Act of 1990, the federal Age Discrimination in Employment Act of 1967 and the Older Workers Benefit Protection Act (the "**ADEA**"), the federal Family and Medical Leave Act, the California Family Rights Act, the California Labor Code and the California Fair Employment and Housing Act.

(c) **ADEA Waiver**. You acknowledge that you are knowingly and voluntarily waiving and releasing any rights you may have under the ADEA (the "**ADEA Waiver**"), and that the consideration given for the ADEA Waiver is in addition to anything of value to which you are already entitled. You further acknowledge that you have been advised, as required by the ADEA. that: (i) your ADEA Waiver does not apply to any rights or claims that may arise after the date that you sign this Agreement; (ii) you should consult with an attorney prior to signing this Agreement (although you may choose voluntarily not to do so); (iii) you have twenty-one (21) days to consider this Agreement (although you may choose voluntarily to sign it earlier); (iv) you have seven (7) days following the date you sign this Agreement to revoke the ADEA Waiver (by providing written notice of your revocation to me); and (v) this Agreement will not be effective until the date upon which the revocation period has expired, which will be the eighth day after the date that this Agreement is signed by you provided that you do not revoke it (the "**Effective Date**").

(d) **Waiver of Unknown Claims**. In giving the releases set forth in this Agreement, which include claims which may be unknown to you at present, you acknowledge that you have read and understand Section 1542 of the California Civil Code, which reads as. follows: "A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party." You hereby expressly waive and relinquish all rights and benefits under that section and any law or legal principle of similar effect in any other jurisdiction with respect to your release of claims herein, including but not limited to the release of unknown and unsuspected claims.

(e) **Excluded Claims**. Notwithstanding the foregoing. the following are not included in the Released Claims (the "**Excluded Claim**"): (i) any rights or claims for indemnification you may have pursuant to any written indemnification agreement with the Company to which you are a party or under applicable law; (ii) any rights which are not waivable as a matter of law; (iii) any rights you have to file or pursue a claim for workers' compensation or unemployment insurance; and (iv) any claims for breach of this Agreement. You hereby represent and warrant that, other than the Excluded Claims, you are not aware of any claims you have or might have against any of the Released Parties that are not included in the Released Claims.

11. No Admissions. You understand and agree that the promises and payments in consideration of this Agreement shall not be construed to be an admission of any liability or obligation by the Company to you or to any other person, and that the Company makes no such admission.

12. Protected Activity. Notwithstanding any provision in this Agreement to the contrary, nothing herein shall prevent you from disclosing the fact or terms of this Agreement as part of any government investigation. or prohibit you from filing a charge. complaint, or report with. or otherwise communicating with. providing information to, cooperating with, or participating in any investigation or proceeding by or before the Equal Employment Opportunity Commission, the United States Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the Securities and Exchange Commission (the "**SEC**"), or any other federal, state or local government agency or commission. While this Agreement does not limit your right to receive an award for information provided to the SEC, you are otherwise waiving, to the fullest extent permitted by law, any and all rights you may have to individual relief based on any claims that you have released and any rights you have waived by signing this Agreement.

13. Representations. You hereby represent that you have been paid all compensation owed and for all hours worked. have received all the leave and leave benefits and protections for which you are eligible pursuant to the federal Family and Medical Leave Act, the California Family Rights Act. any applicable law or Company policy, and have not suffered any on-the-job injury for which you have not already filed a workers' compensation claim.

14. Dispute Resolution. To ensure the timely and economical resolution of disputes that may arise in connection with your employment with the Company, you and the Company agree that any and all disputes, claims or causes of action arising from or relating to the enforcement, breach. performance, negotiation, execution or interpretation of this Agreement, your employment or the termination of your employment including but not limited to statutory claims, shall be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by law by final, binding and confidential arbitration, by a single arbitrator, in San Francisco, California, conducted by Judicial Arbitration and Mediation Services, Inc. ("**JAMS**") or its successor, under JAMS' then applicable rules and procedures for employment disputes (available upon request and also currently available at http://www.jamsadr.com/rules-employment -arbitration/). You acknowledge that by agreeing to this arbitration procedure, both you and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding. The Company acknowledges that you will have the right to be represented by legal counsel at any arbitration proceeding. The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The arbitrator shall be authorized to award any or all remedies that you or the Company would be entitled to seek in a court of law. The Company shall pay all JAMS arbitration fees in excess of the administrative fees that you would be required to pay if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either you or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Any awards or orders in such arbitrations may be entered and enforced as judgments in the federal and state courts of any competent jurisdiction.

15. Miscellaneous. This Agreement, including the previously signed Confidentiality Agreement, constitutes the complete. final and exclusive embodiment of the entire agreement between you and the Company with regard to this subject matter. It is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable. in whole or in part, this determination will not affect any other provision of this Agreement and the provision in question will be modified by the court so as to be rendered enforceable to the fullest extent permitted by law, consistent with the intent of the parties. This Agreement shall be construed and enforced in accordance with the laws of the State of California without regard to conflicts of law principles. Any waiver of a breach of this Agreement, or rights hereunder, shall be in writing and shall not be deemed to be a waiver of any successive breach or rights hereunder. This Agreement may be executed in counterparts which shall be deemed to be part of one original, and facsimile and electronic signatures shall be equivalent to original signatures.

If this Agreement is acceptable to you, please sign and date below and return the original to me no later than March 18, 2020, which is 21 days after the date of this letter. The Company's offer contained herein will automatically expire if we do not receive the fully signed Agreement within this timeframe.

We wish you the best in your future endeavors.

Sincerely

/s/ Richard King
Richard King,
President and CEO
Spruce Biosciences

Acknowledged and accepted:

/s/ Michael Huang, M.D.
Michael Huang, M.D.
Dated: 27 February 2020

Samir Gharib

April 8, 2020

Re: Employment Terms

Dear Samir,

Spruce Biosciences, Inc., a Delaware corporation (the "Company"), is pleased to offer you full-time employment in the regular exempt position of Chief Financial Officer effective as of May 1, 2020 (the "Commencement Date"), in which you will be responsible for such duties as are normally associated with such position or as otherwise determined by your supervisor. You will report to Richard King, the CEO, or such other individual as the Company may designate. Your position will be headquartered in our offices located in San Francisco, California, or such other location as the Company may designate, except for such travel as may be necessary to fulfill your responsibilities. In the course of your employment with the Company, you will be subject to and required to comply with all company policies, and applicable laws and regulations.

You will be paid a base salary at the annual rate of $330,000 subject to required tax withholding and other authorized deductions). Your base salary will be payable in accordance with the Company's standard payroll policies and subject to adjustment pursuant to the Company's policies as in effect from time to time.

In addition to your base salary, you may be eligible to earn an annual cash performance bonus, at the. discretion of the Board of Directors, based on the attainment of corporate performance metrics and/or individual performance objectives, in each case established and evaluated by the Company in its sole discretion. Your target annual bonus shall be 30% of your base salary, but the actual amount of your annual bonus may be more or less (and may equal zero), depending on the attainment of applicable performance criteria and Company achievements. Such annual bonus shall be paid within three months following the year to which the annual bonus relates and will be contingent upon your continued employment through the applicable payment date. You hereby acknowledge and agree that nothing contained herein confers upon you any right to an annual bonus in any year, and that whether the Company pays you an annual bonus and the amount of any such annual bonus will be determined by the Company in its sole discretion.

In connection with entering into this offer letter, following the commencement of your employment with the Company, the Company will recommend to the Board of Directors of the Company (the "Board") that it grant you an option to purchase 775,000 shares of the Company's common stock (the "Stock Option") at a per share exercise price equal to the fair market value of a share of the Company's common stock on the date of grant. Subject to your continued employment with the Company through the applicable vesting date, 25% of the shares underlying the Stock Option will vest on the first anniversary of the date you commence employment with the Company and 1/48th of the total number of shares initially underlying the Stock Option will vest on each monthly anniversary thereafter. The Stock Option will otherwise be subject to the terms and conditions of the Company's 2016 Equity Incentive Plan (as amended, the "Plan") and a stock option agreement to be entered into between you and the Company (the "Stock Option Agreement").

You will be eligible to participate in all of the employee benefits and benefit plans that the Company generally makes available to its regular full-time employees, including group health plans, life and disability insurances, and a 401k Plan. In addition, during your employment, you will be eligible for other standard benefits, such as paid time off and holidays to the extent applicable generally to other similarly situated employees of the Company. The Company reserves the right to terminate, modify or add to its benefits and benefit plans at any time.

The Company requires that, as a full-time employee, you devote your full business time, attention, skill, and efforts to the tasks and duties of your position as assigned by the Company. If you wish to request consent to provide services (for any or no form of compensation) to any other person or business entity while employed by the Company, please discuss that with your supervisor in advance of accepting another position.

As a condition of employment, you will be required to (1) sign and comply with a Proprietary Information and Inventions Assignment Agreement, a copy of which is attached hereto as Exhibit B, which, among other things, prohibits unauthorized use or disclosure of Company proprietary information, (2) sign and return a satisfactory 1-9 Immigration form attached hereto as Exhibit C and provide sufficient documentation establishing your employment eligibility in the United States of America (enclosed is a list of acceptable INS Form 1-9 documentation), and (3) provide satisfactory proof of your identity as required by United States law. This offer, and any employment pursuant to this offer, is also conditioned upon your consent to, and results satisfactory to the Company of reference and background checks. Until you have been informed in writing by Company that such checks have been completed and the results found satisfactory, you may wish to defer reliance on this offer. By signing below, you represent that your performance of services to the Company will not violate any duty which you may have to any other person or entity (such as a present or former employer), including obligations concerning providing services (whether or not competitive) to others, confidentiality of proprietary information and assignment of inventions, ideas, patents or copyrights, and you agree that you will not do anything in the performance of services hereunder that would violate any such duty.

Notwithstanding any of the above, your employment with the Company is “at will”. This means that it is not for any specified period of time and can be terminated by you or by the Company at any time, with or without advance notice, and for any or no particular reason or cause. It also means that your job duties, title and responsibility and reporting level, work schedule, compensation and benefits, as well as the Company’s personnel policies and procedures, may be changed with prospective effect, with or without notice, at any time in the sole discretion of the Company. This “at-will” nature of your employment shall remain unchanged during your tenure as an employee and may not be changed, except in an express writing signed by you and the Chief Executive Officer of the Company.

If you accept this offer, this letter and the Proprietary Information and Invention Assignment Agreement shall constitute the complete agreement between you and Company with respect to the terms and conditions of your employment. Any prior or contemporaneous representations (whether oral or written) not contained in this letter or the Proprietary Information and Invention Assignment Agreement or contrary to those contained in this letter or the Proprietary Information and Inventions Assignment Agreement, that may have been made to you are expressly cancelled and superseded by this offer. This offer letter shall be interpreted and construed in accordance with California law without regard to any conflicts of laws principles. The at-will nature of your employment may not be changed, except in a subsequent letter or written agreement, signed by you and the Chief Executive Officer of the Company.

(signature page follows)

Please sign and date this letter and the Proprietary Information and Invention Assignment Agreement, and return it to me by April 24, 2020 if you wish to accept employment at the Company under the terms described above, after which time this offer of employment will expire. If you accept our offer, we would like you to commence your employment with us as soon as practicable.

We look forward to your favorable reply and to a productive and enjoyable work relationship.

Sincerely,

/s/ Richard King

Richard King

Spruce Biosciences, Inc.

Accept by:

/s/ Samir Gharib
[signature]

Samir Gharib
[name]

April 23, 2020
Date

Exhibit 10.17

March 24, 2017

Mike Grey

Re: Executive Chairman of the Board of Directors

Dear Mike Grey:

This letter confirms our understanding regarding the terms of your service as Executive Chairman of the Board of Directors (the "Board") of Spruce Biosciences, Inc., a Delaware corporation (the "Company") beginning on April 1st, 2017.

Your primary roles and responsibilities as Executive Chairman are set forth in Exhibit A. This letter sets forth our understanding regarding such services to be performed in such capacity, and nothing in this letter nor the services rendered hereunder are meant, or shall be construed in any way or manner, to create between you and the Company a relationship of employer and employee. You may be removed as Executive Chairman by the Board, and nothing in this letter is meant, or shall be construed in any way or manner, to create an ongoing right to serve in such capacity. We agree that you will spend approximately one business days per week performing such services.

Subject to the approval of the Board, you will be granted a stock option to purchase 450,000 shares of the Company's common stock (the "Option"), which as of the date hereof represents 1.5% of the Company's outstanding shares on a fully diluted basis. This Option will be a non-statutory stock option and will have an exercise price per share that will be equal to the fair market value of the Company's common stock as determined by the Board. The Option will generally be subject to the terms and conditions applicable to options granted under the Company's 2016 Equity Incentive Plan (as amended, the "Plan"), as described in the Plan and the applicable stock option agreement, and will vest in forty-eight equal monthly installments subject to your continuous service to the Company as a director through each such vesting date. However, if during your service to the Company, the Company completes a Change in Control (within the meaning of the Plan), 100% of any shares subject to this Option that remain unvested shall immediately vest and become exercisable as of immediately prior to the consummation of such merger or Change in Control.

As a member of the Board pursuant to the Delaware General Corporation Law ("DGCL") and related case law you will owe fiduciary duties to the corporation and its stockholders, including the duty of care (directors must act in good faith, with the care of a prudent person, and in the best interest of the corporation), duty of loyalty (directors must refrain from self-dealing, usurping corporate opportunities and receiving improper personal benefits) and the duty of disclosure (directors must disclose all material information to their fellow directors and, when stockholder action is sought, to the corporation's stockholders). Our certificate of incorporation and bylaws provide that as a director you will be entitled to indemnification to the fullest extent permitted by the DGCL, and further to that upon becoming a member of the Board we will enter into the Company's standard form of indemnification agreement with you. We would be happy to arrange a conference with our outside counsel, Latham & Watkins LLP, if you have any questions about the indemnification agreement or your duties in general under Delaware law.

As a member of the Board you will be reimbursed for any reasonable travel and other out-of-pocket expenses incurred in connection with your services on the Board. Please keep copies of all bills, receipts, or other written documentation of such reimbursable expenses and submit such documentation with your requests for reimbursement.

We look forward with enthusiasm to your service as Executive Chairman. If the foregoing terms are acceptable to you, please sign one copy of this letter and return it to me.

Sincerely,

/s/ Alexis Howerton

Alexis Howerton
President and Chief Executive Officer
Spruce Biosciences, Inc.

AGREED TO AND ACCEPTED:

Signature: */s/ Mike Grey*
Mike Grey
Date: March 26, 2017

Exhibit A

EXECUTIVE CHAIRMAN RESPONSIBILITIES:

- Chair, manage the Board Meetings and Executive Sessions of independent directors and plan agenda with the CEO
- Maintain regular communications with other directors and investors/observers
- Assist in obtaining financing and liquidity for the Company
- Attract and recruit appropriate talent, including to scientific and industrial advisory boards
- Work closely with CEO to define and develop corporate strategy
- Mentor Company leadership team
- Oversee corporate governance

Exhibit 10.18

October 11, 2017

Camilla Simpson

Re: Member of the Board of Directors

Dear Camilla:

This letter confirms our understanding regarding the terms of your service as Member of the Board of Directors (the "Board") of Spruce Biosciences. Inc., a Delaware corporation (the "Company") beginning on October 19, 2017. This letter sets forth our understanding regarding such services to be performed in such capacity, and nothing in this letter nor the services rendered hereunder are meant, or shall be construed in any way or manner, to create between you and the Company a relationship of employer and employee.

Subject to the approval of the Board, you will be granted a stock option to purchase 105,000 shares of the Company's common stock (the "Option"), which as of the date hereof represents approximately 0.35% of the Company's outstanding shares on a fully diluted basis. This Option will be a non-statutory stock option and will have an exercise price per share that will be equal to the fair market value of the Company's common stock as determined by the Board. The Option will generally be subject to the terms and conditions applicable to options granted under the Company's 2016 Equity Incentive Plan (as amended, the "Plan"), as described in the Plan and the applicable stock option agreement, and will vest in forty-eight equal monthly installments subject to your continuous service to the Company as a director through each such vesting date. However, it during your service to the Company, the Company completes a Change in Control (within the meaning of the Plan), 100% of any shares subject to this Option that remain unvested shall immediately vest and become exercisable as of immediately prior to the consummation of such merger or Change in Control.

As a member of the Board, pursuant to the Delaware General Corporation Law ("DGCL") and related case law you will owe fiduciary duties to the Company and its stockholders, including the duty of care (directors must act in good faith, with the care of a prudent person, and in the best interest of the corporation), duty of loyalty (directors must refrain from self-dealing, usurping corporate opportunities and receiving improper personal benefits) and the duty of disclosure (directors must disclose all material information to their fellow directors and, when stockholder action is sought, to the corporation's stockholders). Our certificate of incorporation and bylaws provide that, as a director, you will be entitled to indemnification to the fullest extent permitted by the DGCL, and, upon your becoming a member of the Board, we will enter into the Company's standard form of indemnification agreement with you. We would be happy to arrange a conference with our outside counsel, Cooley LLP, if you have any questions about the indemnification agreement or your duties in general under Delaware law.

As a member of the Board, you will be reimbursed for any reasonable travel and other out-of-pocket expenses incurred in connection with your services on the Board. Please keep copies of all bills, receipts, or other written documentation of such reimbursable expenses and submit such documentation with your requests for reimbursement.

We look forward with enthusiasm to your service as a Member of the Spruce Biosciences Board of Directors. If the foregoing terms are acceptable to you, please sign one copy of this letter and return it to me.

Sincerely,

/s/ Alexis Howerton
Alexis Howerton
President and Chief Executive Officer
Spruce Biosciences, Inc.

AGREED TO AND ACCEPTED:

Signature: /s/ Camilla Simpson
Camilla Simpson
Date: 15 Oct 2017

◆ 2001 DC STATION ◆
Daly City, California

OFFICE LEASE AGREEMENT

BETWEEN

DC STATION OWNER, LLC,
a Delaware limited liability company

AS LANDLORD

AND

SPRUCE BIOSCIENCES, INC.,
a Delaware corporation

AS TENANT

DATED AS OF
FEBRUARY 13, 2020

OFFICE LEASE AGREEMENT

This Office Lease Agreement (this "**Lease**") is entered into as of February 13, 2020, by and between the Landlord and the Tenant hereinafter named.

BASIC LEASE INFORMATION

Landlord:	DC STATION OWNER, LLC, a Delaware limited liability company ("**Landlord**")
Tenant:	SPRUCE BIOSCIENCES, INC., a Delaware corporation ("**Tenant**")
Premises:	Suite No. 640, containing approximately 8,267 square feet of Rentable Area (the "**Premises**"), located on the sixth (6th) floor of that certain nine (9)-story office building (the "**Building**") whose street address is 2001 Junipero Serra Boulevard, Daly City, California. The Premises are outlined on the plan attached to the Lease as Exhibit A. The Building is part of that certain transit oriented mixed use project (the "**Project**") commonly known as 2001 DC Station, which consists of the Building, the land on which the Building is located (the "**Land**"), and the sidewalks and similar improvements and easements associated with the foregoing or the operation thereof, including a reciprocal easement for the parking garage located on an adjacent parcel owned by another entity (the "**Parking Garage**"), including the Common Areas (as defined in Section 7(b)). As used herein, "**Rentable Area**" shall mean the number of rentable square feet included within the Building as calculated by Landlord. The Rentable Area of the Premises is agreed for all purposes of this Lease by Tenant and Landlord to be the amount stated above.
Term:	Approximately sixty three (63) months, commencing on the Commencement Date and ending at 5:00 p.m. local time on the last day of the 63rd full calendar month following the Commencement Date (the "**Expiration Date**"), subject to adjustment and earlier termination as provided in the Lease; provided, however, that the Term may be extended, at Tenant's option, as specifically provided in Exhibit G attached hereto.
Commencement Date:	The earliest to occur of: (a) the date on which Tenant occupies any portion of the Premises and begins conducting business therein; (b) the date on which the Work (as defined in Exhibit C) in the Premises is Substantially Completed (as defined in Exhibit C) and possession is tendered to Tenant (the "**Delivery Date**"); or (c) the date on which the Delivery Date would have occurred but for the occurrence of any Tenant Delay Days (as defined in Exhibit C).

Base Rent:	Base Rent shall be the following amounts for the following periods of time:

Months	Monthly Base Rent Rate Per Rentable Square Foot	Monthly Base Rent
1 – 5	$ 0.0000	Abated*
6 – 12	$ 4.5000	$ 37,201.50
13 – 24	$ 4.6350	$ 38,317.55
25 – 36	$ 4.7741	$ 39,467.07
37 – 48	$ 4.9173	$ 40,651.08
49 – 60	$ 5.0648	$ 41,870.62
61 – 63	$ 5.2167	$ 43,126.73

*Base Rent shall be abated during the first five (5) months of the Term. Notwithstanding such abatement of Base Rent (a) all other sums due under the Lease, including Additional Rent (as defined in Section 4(b)), shall be payable as provided in the Lease, and (b) any increases in Base Rent set forth in the Lease shall occur on the dates scheduled therefor. The abatement of Base Rent provided for herein is conditioned upon Tenant's full and timely performance of all of its obligations under the Lease. If at any time during the Term an Event of Default (as defined in Section 17) by Tenant occurs, then the abatement of Base Rent provided for herein shall immediately become void, and Tenant shall promptly pay to Landlord, in addition to all other amounts due to Landlord under this Lease, the unamortized amount of all Base Rent herein abated (i.e., $186,007.50 amortized on a straight-line basis over the initial Term).

Rent:	Base Rent and Additional Rent and any other sums that Tenant may owe to Landlord or otherwise be required to pay under this Lease.
Security Deposit:	$215,633.65 in the form of a Letter of Credit. See Section 6(b).
Permitted Use:	General office use, and for no other purpose whatsoever.
Expense Base Year:	Calendar year 2020
Tax Base Year:	Calendar year 2020
Tenant's Proportionate Share of Operating Costs:	2.15% (based on 384,954 square footage of the Rentable Area of the Building).
Tenant's Proportionate Share of Real Property Taxes:	2.15% (based on the 384,954 square footage of the Rentable Area of the Building).
Parking:	Tenant shall have the right, but not the obligation, to use 3 parking spaces per 1,000 square feet of Rentable Area of the Premises, which amounts to a total of 24 unreserved parking spaces, in the Parking Garage, at no additional charge over the Term.
Brokers:	For Tenant: Cushman & Wakefield For Landlord: CBRE, Inc.

Tenant's Address for Notices:	Prior to Commencement Date: Spruce Biosciences 548 Market Street Suite 74598 San Francisco, CA 94104-5401	Following Commencement Date: 2001 Junipero Serra Blvd. Suite 640 Daly City, CA 94014
Landlord's Address for Notices:	DC Station Owner, LLC	With a copy to: DC Station Owner, LLC

The following exhibits are attached hereto and incorporated herein by this reference:

Exhibit A – Diagram of Premises
Exhibit B – Standards for Services and Utilities
Exhibit C – Work Letter
Exhibit C-1 – Contractor Rules and Regulations
Exhibit C-2 – Energy and Sustainability Construction Guidelines and Requirements
Exhibit D – Project Rules and Regulations
Exhibit E – Form of Commencement Date Memorandum
Exhibit F – Form of Tenant Estoppel Certificate
Exhibit G – Renewal Option

The foregoing Basic Lease Information is incorporated into and made a part of this Lease. If any conflict exists between any Basic Lease Information and the following provisions of the Lease, then the Basic Lease Information shall control.

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TABLE OF CONTENTS

LEASE PROVISIONS

1. **Definitions and Basic Provisions**. The definitions and basic provisions set forth in the foregoing Basic Lease Information (the "**Basic Lease Information**") are incorporated herein by reference for all purposes. Additionally, the following terms shall have the following meanings when used in this Lease: "**Affiliate**" means any person or entity which, directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with the party in question; "**Building's Structure**" means the exterior walls, roof, elevator shafts, footings, foundations, structural portions of load-bearing walls, structural floors and subfloors, and structural columns and beams of the Building; "**Building's Systems**" means the Premises' and the Building's heating, ventilation and air conditioning ("**HVAC**"), electrical, mechanical, life-safety and plumbing systems; "**Business Day(s)**" means Monday through Friday of each week, exclusive of Holidays; "**Holidays**" means New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and any other nationally, regionally or city-wide recognized holiday; "**including**" means including, without limitation; "**Laws**" means all federal, state and local laws, ordinances, rules and regulations, all court orders, governmental directives and governmental orders and all interpretations of the foregoing and all restrictive covenants affecting the Project, and "**Law**" shall mean any of the foregoing; "**Normal Business Hours**" means 8:00 a.m. to 6:00 p.m. on Business Days, exclusive of Holidays; and "**Tenant Party**" means any of the following persons: Tenant; any assignees claiming by, through or under Tenant; any subtenants claiming by, through or under Tenant; and any of their respective agents, contractors, employees and invitees.

2. **Lease Grant**. Subject to the terms of this Lease, Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord, the Premises. Tenant shall have access to the Premises seven (7) days per week, twenty-four (24) hours per day, every day of the year, subject to such after-Normal Business Hour security procedures as Landlord may require.

3. **Premises**.

(a) "**AS IS" Condition**. Tenant acknowledges that: (i) it has been advised by Landlord, Landlord's broker and Tenant's broker to satisfy itself with respect to the condition of the Premises (including the Building's Systems located therein, and the security and environmental aspects thereof) and the present and future suitability of the Premises for Tenant's intended use; (ii) Tenant has made such inspection and investigation as it deems necessary with reference to such matters and assumes all responsibility therefor as the same relate to Tenant's occupancy of the Premises; and (iii) neither Landlord nor any of Landlord's agents has made any oral or written representations or warranties with respect to the condition, suitability or fitness of the Premises other than as may be specifically set forth in this Lease. Subject to the terms and conditions of Exhibit C, by occupying the Premises, Tenant shall be deemed to have accepted the Premises in its then "**AS IS**" condition, subject to all applicable Laws. Tenant further acknowledges that Landlord shall have no obligation to provide or to fund any tenant improvements to the Premises except as may be specifically set forth in this Lease. Landlord and Tenant stipulate that the number of square feet of Rentable Area in the Premises and in the Building set forth in the Basic Lease Information is conclusive as to the square footage in existence on the date of this Lease and shall be binding upon them.

(b) **Estimated Delivery Date; Delay in Delivery**. Landlord and Tenant presently anticipate that the Delivery Date shall be on or about May 1, 2020 (the "**Estimated Delivery Date**"). If Landlord is unable to tender possession of the Premises in the condition required by this Lease to Tenant by the Estimated Delivery Date, then: (1) the validity of this Lease

shall not be affected or impaired thereby; (2) the duration of the Term shall not be affected thereby; (3) Landlord shall not be in default hereunder or be liable for damages therefor; and (4) Tenant shall accept possession of the Premises when Landlord tenders possession thereof to Tenant. Tenant's obligation to pay Rent shall begin on the Commencement Date, subject to the abatement of Base Rent provided in the Basic Lease Information. Notwithstanding anything to the contrary set forth in this Lease, if Landlord has not tendered possession of the Premises to Tenant with the Work Substantially Completed within one hundred twenty (120) days after the date of mutual execution of this Lease, as the same may be extended due to delays caused by or attributable to Tenant or any Tenant Party, force majeure or any reason outside of Landlord's control (such date, as extended, the "**Outside Delivery Date**"), then Tenant shall have the right, as its sole remedy, to one day of Base Rent abatement for each day of such delay beyond the Outside Delivery Date until the date Landlord delivers possession of the Premises in the condition required hereunder.

(c) **Early Access**. Subject to Tenant's delivery of an executed original of this Lease, the prepaid Base Rent and the Letter of Credit as required elsewhere in this Lease, and the insurance certificates evidencing Tenant's insurance policies required under this Lease, Landlord shall provide Tenant with early access to the Premises on the latest to occur of (i) the first (1st) Business Day following the date of mutual execution and delivery of this Lease, (ii) the first (1st) Business Day following the date on which Landlord determines the Premises is free and clear of any existing tenancy, and (iii) fifteen (15) days prior to Landlord's then-estimated date of delivery of the Premises (in any case, the "**Access Date**"). Such period of early access shall commence on the Access Date and continue through the date immediately preceding the Commencement Date (the "**Early Access Period**"), and Tenant's access during the Early Access Period shall be subject to all of the terms and conditions of this Lease, except for Tenant's obligation to pay Rent (which obligation shall commence upon the Commencement Date, subject to the abatement of Base Rent provided in the Basic Lease Information). Notwithstanding the foregoing, the conduct of business in the Premises shall cause an immediate acceleration of the Commencement Date to the date of Tenant's initial conduct of business in the Premises. During the Early Access Period, Tenant may enter the Premises (but not any other portion of the Building or the Project other than for ingress and egress) for the sole purpose of installing cabling, furniture, fixtures and equipment, provided that Tenant shall be solely responsible for all of the foregoing and for any loss or damage thereto from any cause whatsoever. Such early access and installation shall be permitted only to the extent that such early access and installation activities will not interfere with the access, use and occupancy of the Building or the Project by Landlord or any other tenant or occupant and/or Landlord's performance of the Work and/or otherwise delay Landlord's delivery of possession of the Premises to Tenant in the condition required under this Lease. The provisions of Sections 8(a) and 11 of this Lease shall apply in full during the Early Access Period, and Tenant shall (x) provide certificates of insurance evidencing the existence and amounts of liability insurance carried by Tenant and its agents and contractors, reasonably satisfactory to Landlord, prior to and as a condition to such early access, and (y) comply with all Laws applicable to such early access work in the Premises. If Landlord reasonably determines that Tenant's early access is interfering in any material way with Landlord's ability to deliver possession of the Premises in the condition required under this Lease and/or to complete the Work, then Landlord shall have the right to limit or otherwise restrict Tenant's access during the Early Access Period without any liability.

(d) **Commencement Date Memorandum**. Prior to occupying the Premises, Tenant shall execute and deliver to Landlord a letter substantially in the form of Exhibit E hereto confirming: (1) the Commencement Date and the Expiration Date of the initial Term; (2) that Tenant has accepted the Premises; and (3) that Landlord has performed all of its obligations with respect to the Premises (except for punchlist items specified in such letter, if any); provided,

however, that the failure of the parties to execute such letter shall not defer the Commencement Date or otherwise invalidate this Lease. Tenant's failure to execute such document (or to provide corrections to factual information set forth therein) within ten (10) days of receipt thereof from Landlord shall be deemed to constitute Tenant's agreement to the contents of such document.

4. **Rent**.

(a) **Base Rent**. Tenant shall timely pay to Landlord Rent without notice, demand, deduction or set-off (except as otherwise expressly provided herein), by good and sufficient check or by ACH, to DC Station Owner, LLC, P.O. BOX 398990, San Francisco, CA 94139-8990, or to such other address as may be specified by Landlord in writing from time to time. The obligations of Tenant to pay Base Rent and other sums to Landlord and the obligations of Landlord under this Lease are independent obligations. Base Rent, adjusted as herein provided, shall be payable monthly in advance. The installment of Base Rent for the sixth (6th) month of the Term shall be payable contemporaneously with the execution and delivery of this Lease by Tenant; thereafter, Base Rent shall be payable on the first (1st) day of each month. If the Commencement Date does not occur on the first (1st) day of a calendar month, the Base Rent for the period from the Commencement Date to the last day of the month in which the Commencement Date occurs shall be included in the payment of Base Rent for the seventh (7th) month of the Term. The monthly Base Rent for any partial month at the beginning or end of the Term shall be prorated based on the actual number of days in the partial month and shall be payable in advance.

(b) **Payment of Operating Costs**. Tenant shall pay to Landlord (i) Tenant's Proportionate Share of the annual Operating Costs (as defined below, excluding Real Property Taxes, as defined below) for the Project in excess of the Operating Costs (excluding Real Property Taxes) for the Project for the Expense Base Year, and (ii) Tenant's Proportionate Share of the annual Real Property Taxes for the Project in excess of the Real Property Taxes for the Project for the Tax Base Year (collectively, "**Additional Rent**"). Landlord shall make a good faith estimate of the Additional Rent to be due by Tenant for any calendar year or part thereof during the Term following the Expense Base Year and the Tax Base Year, as the case may be. During each calendar year or partial calendar year of the Term following the Expense Base Year and the Tax Base Year, as the case may be, Tenant shall pay to Landlord, in advance, concurrently with each monthly installment of Base Rent, an amount equal to the estimated Additional Rent for such calendar year or part thereof divided by the number of months Tenant is in occupancy during said calendar year. From time to time, Landlord may estimate and re-estimate the Additional Rent to be due by Tenant and deliver a copy of the estimate or re-estimate to Tenant. Thereafter, the monthly installments of Additional Rent payable by Tenant shall be appropriately adjusted in accordance with the estimations so that, by the end of the calendar year in question, Tenant shall have paid all of the Additional Rent as estimated by Landlord. Any amounts paid based on such an estimate shall be subject to adjustment as herein provided when actual Operating Costs and Real Property Taxes are available for each calendar year. In addition, Landlord shall have the right, from time to time, to equitably allocate and prorate some or all of the Operating Costs among different tenants and/or different buildings of the Project and/or on a building-by-building basis (the "**Cost Pools**"), adjusting Tenant's Proportionate Share as to each of the separately allocated costs based on the ratio of the Rentable Area of the Premises to the Rentable Area of all of the premises to which such costs are allocated. Such Cost Pools may include, without limitation, the office space tenants and retail space tenants of the Project.

(c) **Definition of Operating Costs**. The term "**Operating Costs**" shall mean all costs and disbursements that Landlord incurs in connection with the ownership, operation, maintenance, repair and replacement of the Project determined in accordance with sound accounting principles consistently applied, including premiums for property, liability and other coverages carried by Landlord, including deductibles and risk retention programs and an allocation of a portion of the cost of blanket insurance policies maintained by Landlord and/or its Affiliates; property management fees and expenses; service and maintenance contracts; salaries, wages, benefits and other payroll expenses of employees engaged in the operation, maintenance or repair of the Project; rent and expenses for Landlord's and any property manager's offices in the Project not to exceed the fair market rent for such spaces, with such spaces not to exceed the size of property managers' office spaces for comparable projects; Real Property Taxes (as defined in Section 4(e) below); repair and maintenance costs; telecom expenses; license fees; the Building's Systems maintenance, repair and replacement costs; utilities; repair and replacement, resurfacing or repaving of paved areas, sidewalks, curbs and gutters, life safety; security (if and to the extent Landlord elects to provide same); janitorial services and cleaning supplies; window cleaning and elevator maintenance and uniforms for personnel providing services; trash collection; pest control charges; materials, supplies; administrative costs; business license taxes and fees; tools and rental equipment; administrative costs; costs associated with operating a shuttle (if applicable and available to Tenant), cost of all utilities not directly metered to individual tenants (including water, sewer, electrical, gas, trash/recycling/compost) and the cost of janitorial services for the Common Areas and tenant premises and supplies used in connection therewith (including night service, day porter(s), cleaning/restroom supplies and interior window cleaning), and the costs for capital improvements (as determined pursuant to generally accepted accounting principles ("**GAAP**"), consistently applied) made to the Project (i) to comply with applicable Laws hereafter promulgated by any governmental authority or any interpretation hereafter rendered with respect to any existing Laws, (ii) to reduce operating expenses, or (iii) to improve the health, safety and welfare of the Project and its tenants, in each case amortized using a commercially reasonable interest rate over the useful life of the improvement as reasonably determined by Landlord pursuant to GAAP. Operating Costs shall not include costs for: (1) costs paid by proceeds of insurance, condemnation awards or by Tenant or other third parties; (2) interest, amortization or other payments on loans to Landlord; (3) leasing commissions; (4) advertising expenses; (5) legal expenses for services or in defense of Landlord's title to the Project, other than those that benefit the Project tenants generally (e.g., tax disputes); (6) renovating or otherwise improving leased premises in the Project; (7) depreciation; (8) salaries of officers and executives of Landlord; (9) any costs included in Operating Costs representing an amount paid to a corporation related to Landlord which is in excess of the amount which would have been paid in the absence of such relationship; (10) interest and penalties due to late payment of amounts owed by Landlord (except in connection with settlement of a bona fide Real Property Tax appeal); (11) Landlord's general corporate and overhead and costs related to the maintenance of Landlord as a legal entity; (12) federal or state income taxes imposed on or measured by the income of Landlord and inheritance and estate taxes; (13) ground lease rental; (14) expenses arising from the construction, sale or financing or the Building; (15) the cost of remediation of Hazardous Materials to the extent not arising from Tenant's breach of any of its obligations under Section 24 hereof, provided that Operating Costs may include the incidental costs attributable to removing Hazardous Materials in the ordinary course of cleaning and maintaining the Project; (16) costs included in connection with services or other benefits which are provided to tenants or occupants other than Tenant, but not made available to Tenant; (17) reserves, including reserves for capital expenditures or improvements, bad debts, or rental losses; (18) costs directly resulting from the gross negligence or willful misconduct of Landlord or its employees, officers, directors, contractors or agents; and (19) cost of capital improvements to comply with applicable Laws in existence and enforced as of the date of this Lease.

(d) **Gross-Up**. With respect to any calendar year or partial calendar year, including the Expense Base Year, in which the Building is not occupied to the extent of 95% of the Rentable Area thereof, or Landlord is not supplying services to 95% of the Rentable Area thereof, the Operating Costs for such period shall, for the purposes hereof, be increased to the amount which would have been incurred had the Building been occupied to the extent of 95% of the Rentable Area thereof and Landlord had been supplying services to 95% of the Rentable Area thereof.

(e) **Definition of Real Property Taxes**. The term "**Real Property Taxes**" shall mean all real property taxes, assessments, levies and impositions of any kind (whether general, special, ordinary or extraordinary) that are paid or incurred by Landlord for the Project (without regard to any different fiscal year used by any governmental or municipal authority) as well as transit impact fees levied by local authorities, charges, fees or assessments for transit, housing, day care, open space, art, police, fire, or other governmental services or benefits to the Project, the costs of consultants engaged to lower or dispute real property taxes and assessments, and personal property taxes imposed on the fixtures, equipment and other personal property of Landlord used in connection with the Project. Real Property Taxes shall not include federal or state income taxes imposed on or measured by the income of Landlord from the operation of the Project.

(f) **Operating Costs Reconciliation Statement**. Landlord shall use commercially reasonable efforts to furnish to Tenant a statement of Operating Costs for the previous year (the "**Operating Costs Reconciliation Statement**") within six (6) months after the expiration thereof. Landlord's failure to deliver an Operating Costs Reconciliation Statement despite its commercially reasonable efforts to do so shall not be deemed a default by Landlord under this Lease nor shall the same limit Landlord's right to exercise its rights (or excuse Tenant from performing its obligations) hereunder. If Tenant's estimated payments of Operating Costs under this Section 4 for the year covered by the Operating Costs Reconciliation Statement exceed Tenant's share of such items as indicated in the Operating Costs Reconciliation Statement, then Landlord shall promptly credit or reimburse Tenant for such excess; likewise, if Tenant's estimated payments of Operating Costs under this Section 4 for such year are less than Tenant's share of such items as indicated in the Operating Costs Reconciliation Statement, then Tenant shall promptly pay Landlord such deficiency within thirty (30) days of receipt of the Operating Costs Reconciliation Statement, notwithstanding that the Term has expired and Tenant has vacated the Premises. Landlord shall have the same remedies for a default in the payment of Operating Costs as for a default in the payment of Base Rent.

(g) **Tenant's Audit Right**. Within sixty (60) days (the "**Audit Election Period**") after Landlord furnishes to Tenant the Operating Costs Reconciliation Statement for any calendar year, Tenant may, at its expense during Landlord's normal business hours, elect to audit Landlord's Operating Costs for such calendar year only, subject to the following conditions: (1) no Event of Default has occurred under this Lease; (2) the audit shall be prepared by an independent certified public accounting firm of recognized national standing; (3) in no event shall any audit be performed by a firm retained on a "contingency fee" basis; (4) the audit shall commence within thirty (30) days after Landlord makes Landlord's books and records available to Tenant's auditor and shall conclude within sixty (60) days after commencement; (5) the audit shall be conducted where Landlord maintains its books and records and shall not interfere with the conduct of Landlord's business; and (6) Tenant and its accounting firm shall treat any audit in a confidential manner and shall each execute Landlord's commercially reasonable confidentiality agreement for Landlord's benefit prior to commencing the audit. Tenant shall deliver a copy of such audit to Landlord within five (5) Business Days following the completion of such audit by Tenant. This

paragraph shall not be construed to limit, suspend or abate Tenant's obligation to pay Rent when due, including estimated Operating Costs. After verification, Landlord shall credit any overpayment determined by the audit report against the next Rent due and owing by Tenant or, if no further Rent is due, refund such overpayment directly to Tenant within thirty (30) days of determination. Likewise, Tenant shall pay Landlord any underpayment determined by the audit report within thirty (30) days of determination. The foregoing obligations shall survive the expiration or earlier termination of the Lease. If Tenant does not give written notice of its election to audit during the Audit Election Period, Landlord's Operating Costs for the applicable calendar year shall be deemed approved for all purposes, and Tenant shall have no further right to review or contest the same. If the audit proves that Landlord's calculation of Operating Costs for the calendar year under inspection was overstated by more than seven and 50/100 percent (7.5%) in the aggregate, then, after verification, Landlord shall pay Tenant's actual reasonable out-of-pocket audit and inspection fees applicable to the review of said calendar year statement (not to exceed $3,500 per audit) within thirty (30) days after receipt of Tenant's invoice therefor.

5. **Delinquent Payment; Handling Charges**. All past due payments (other than late charges) required of Tenant hereunder shall bear interest from the date due until paid at the lesser of twelve percent (12%) per annum or the maximum lawful rate of interest (such lesser amount is referred to herein as the "**Default Rate**"); additionally, Landlord, in addition to all other rights and remedies available to it, may charge Tenant a fee equal to five percent (5%) of the overdue amount plus an additional $350.00 to reimburse Landlord for its cost and inconvenience incurred as a consequence of Tenant's delinquency. Any such late charge and interest payment shall constitute additional Rent under this Lease, shall not be considered a waiver by Landlord of any default by Tenant hereunder, and shall be payable immediately on demand. In no event, however, shall the charges permitted under this Section 5 or elsewhere in this Lease, to the extent they are considered to be interest under applicable Law, exceed the maximum lawful rate of interest. Notwithstanding the foregoing, the late fee and the interest referenced above shall not be charged with respect to the first occurrence (but may be charged with respect to any subsequent occurrence) during any twelve (12) month period that Tenant fails to make payment when due, until five (5) days after Landlord delivers written notice of such delinquency to Tenant.

6. **Security Deposit; Letter of Credit**.

(a) **Security Deposit**. Tenant shall pay to Landlord a security deposit in the form of a Letter of Credit (in accordance with the terms of Section 6(b) below), which shall be held by Landlord throughout the Term to secure Tenant's performance of its obligations under this Lease. Any amount drawn on the Letter of Credit (each, a "**Drawn Amount**") is not an advance payment of Rent or a measure or limit of Landlord's damages upon an Event of Default. Landlord may, at Landlord's discretion, from time to time following an Event of Default and without prejudice to any other remedy, use all or a part of any Drawn Amount to perform any obligation Tenant fails to perform hereunder or in connection with Landlord's remedies under this Lease. Subject to the requirements of, and conditions imposed by, Laws applicable to security deposits under commercial leases, Landlord shall, within thirty (30) days following the end of the Term, return to Tenant the portion of any Drawn Amount remaining after deducting all damages, charges and other amounts permitted by Law. Landlord and Tenant agree that such deductions shall include all damages and losses that Landlord has suffered or that Landlord reasonably estimates that it will suffer as a result of any breach of this Lease by Tenant. Tenant hereby waives the protections of Section 1950.7(c) of the California Civil Code, as it may hereafter be amended, or similar laws of like import. Unless required otherwise by applicable Law, any Drawn Amount may be commingled with other funds, and no interest shall be paid thereon.

(b) **Letter of Credit**. The form of the security deposit under this Lease shall be an Irrevocable Standby Letter of Credit (the "**Letter of Credit**") which shall (1) be addressed to Landlord, (2) be in a form reasonably acceptable to Landlord, (3) be issued by a federally insured financial institution which is acceptable to Landlord in Landlord's sole discretion, with minimum assets of Ten Billion Dollars ($10,000,000,000.00) (the "**Minimum Assets**"), upon which presentment may be made in the City of San Francisco, California, (4) be in an amount equal to $215,633.65 (the "**Minimum Amount**"), (5) allow for partial and multiple draws thereunder, and (6) have an expiration date not earlier than sixty (60) days after the scheduled Term expiration date (as the same may be extended) or in the alternative, have a term of not less than one (1) year and be automatically renewable for additional one (1) year periods unless, on or before the date sixty (60) days prior to the expiration of the term of such Letter of Credit, the issuer of such Letter of Credit gives notice to Landlord of its election not to renew such Letter of Credit for any additional period pursuant thereto. In addition, the Letter of Credit shall provide that, in the event of Landlord's assignment of its interest in this Lease, the Letter of Credit shall be freely transferable by Landlord to the assignee without charge to Landlord or approval of the issuer. The Letter of Credit shall provide for same day payment to Landlord upon the issuer's receipt of a sight draft from Landlord together with Landlord's certificate certifying that the requested sum is due and payable from Tenant and Tenant has failed to pay, and with no other conditions.

(i) Tenant shall, on or before the date which is sixty (60) days prior to the expiration of the Letter of Credit, deliver to Landlord a new Letter of Credit satisfying the foregoing requirements in lieu of the Letter of Credit then being held by Landlord. If the issuer of such existing or new Letter of Credit provides notice of its election to not renew such Letter of Credit for any additional period, Tenant shall be required to deliver a new Letter of Credit on or before the date which is sixty (60) days prior to the expiration of the term of the Letter of Credit then being held by Landlord. If neither a new Letter of Credit nor a renewal of the Letter of Credit is timely delivered to Landlord, then Landlord may (without prejudicing any other right or remedy available to Landlord) draw down the entire Letter of Credit and, until Tenant delivers to Landlord the new Letter of Credit as required by this paragraph, hold the drawn cash in accordance with the terms of Section 6(a) above.

(ii) The Letter of Credit shall be replaced by a new Letter of Credit if the issuing financial institution: (a) has assets which fall below the Minimum Assets; (b) enters into any form of regulatory or governmental proceeding, including without limitation any receivership instituted or commenced by the Federal Deposit Insurance Corporation (the "**FDIC**"); (c) is otherwise declared insolvent, is downgraded by the FDIC, is determined to be less than well capitalized by the appropriate Federal banking agency under the prompt corrective action rules of the FDIC, or closes for any reason; (d) is removed from Landlord's list of approved financial institutions, in Landlord's sole discretion; or (e) in any manner communicates (including without limitation communications sent by or on behalf of the FDIC) its unwillingness to honor the terms of the Letter of Credit. If Tenant fails to deliver to Landlord the replacement Letter of Credit within ten (10) Business Days following Landlord's written demand for same, Landlord shall be entitled to draw down the entire Letter of Credit and, until Tenant delivers to Landlord the replacement Letter of Credit as required by this paragraph, hold the drawn cash in accordance with the terms of Section 6(b) above.

(iii) In the event that Tenant is in default under the terms and provisions of the Lease, then Landlord shall have the right, at any time after such event, without giving any further notice to Tenant: (1) to make a partial draw upon said Letter of Credit (and/or Additional Letter of Credit, as defined below, as the case may be) (a) in an amount necessary to cure such

default or (b) if such default cannot reasonably be cured by the expenditure of money, and Landlord exercises any rights and remedies Landlord may have on account of such default, in an amount which, in Landlord's opinion, is necessary to satisfy Tenant's liability on account thereof; or (2) to draw down the entire amount of such Letter of Credit (and/or Additional Letter of Credit) at such time; and any such amounts received by Landlord shall be held by Landlord (and need not be segregated or accrue interest unless otherwise required by Law) and applied in accordance with this Lease.

(iv) Following a draw by Landlord on the Letter of Credit, at Landlord's election the Letter of Credit shall: (a) be replaced by Tenant within ten (10) Business Days after written notice from Landlord by a new Letter of Credit in the Minimum Amount, in which event the Letter of Credit then held by Landlord shall be terminated; or (b) be augmented by Tenant within five (5) Business Days after written notice from Landlord by an additional Letter of Credit in the amount of a partial draw (the "**Additional Letter of Credit**") subject to the requirements set forth above, in which event the Letter of Credit then held by Landlord and the Additional Letter of Credit shall both be held by Landlord.

(v) In addition, in the event of a termination based upon the default of Tenant under the Lease, or a rejection of the Lease pursuant to the provisions of the Federal Bankruptcy Code, Landlord shall have the right to draw upon the Letter of Credit and/or the Additional Letter of Credit (from time to time, if necessary) to cover the full amount of damages and other amounts due from Tenant to Landlord under the Lease. Any amounts so drawn shall, at Landlord's election, be applied first to any unpaid rent and other charges which were due prior to the filing of the petition for protection under the Federal Bankruptcy Code. Any such draw on the Letter of Credit shall not constitute a waiver of any other rights of Landlord with respect to Tenant's default under the Lease. Tenant hereby covenants and agrees not to oppose, contest or otherwise interfere with any attempt by Landlord to draw upon said Letter of Credit (and/or Additional Letter of Credit) including, without limitation, by commencing an action seeking to enjoin or restrain Landlord from making such draw. Tenant also hereby expressly waives any right or claim it may have to seek such equitable relief. In addition to whatever other rights and remedies Landlord may have against Tenant if Tenant breaches its obligations under this paragraph, Tenant hereby acknowledges that it shall be liable for any and all damages which Landlord may suffer as a result of any such breach (including without limitation recovery of Landlord's reasonable attorneys' fees and court costs).

(vi) Without limiting the import of the preceding paragraphs, Tenant agrees that in the event that Tenant fails timely to deliver to Landlord a replacement letter of credit when required hereunder, then Landlord shall have the right, at any time after such event, without giving any further notice to Tenant, to draw down the entire Letter of Credit (and/or Additional Letter(s) of Credit) and to hold the proceeds thereof in accordance with the terms of Section 6(a) above.

(vii) Upon request of Landlord or any (prospective) purchaser or mortgagee of the Building, Tenant shall, at its expense, cooperate with Landlord in obtaining an amendment to or replacement of any Letter of Credit which Landlord is then holding so that the amended or new Letter of Credit reflects the name of the new owner and/or mortgagee of the Building.

(viii) To the extent that Landlord has not previously drawn upon any Letter of Credit or Additional Letter of Credit held by Landlord, and to the extent that Tenant is not otherwise in default of its obligations under the Lease as of the expiration date of the Lease, Landlord shall return such Letter(s) of Credit to Tenant promptly following the expiration of the Term of the Lease.

(ix) In no event shall the proceeds of any Letter of Credit be deemed to be a prepayment of rent nor shall it be considered as a measure of liquidated damages.

(x) For the avoidance of doubt, Landlord and Tenant (a) agree that the Letter of Credit shall in no event be deemed or treated as a "security deposit" under any Law applicable to security deposits in the commercial context, (b) further acknowledge and agree that the Letter of Credit is not intended to serve as a security deposit and the Laws applicable to security deposits shall have no applicability or relevancy thereto, and (c) waive any and all rights, duties and obligations either party may now have or, in the future will have, relating to or arising from the Laws applicable to security deposits.

(xi) Tenant unconditionally and irrevocably waives (and as an independent covenant hereunder, covenants not to assert) any right to claim or obtain in connection with the Letter of Credit a temporary restraining order, temporary injunction, permanent injunction, or other order that would prevent, restrain or restrict the presentment of sight drafts drawn under any Letter of Credit or the issuing bank's honoring or payment of sight draft(s). Tenant's sole remedy in connection with the improper presentment or payment of sight drafts drawn under any Letter of Credit shall be the right to obtain from Landlord a refund of the amount of any sight draft(s) that were improperly presented or the proceeds of which were misapplied, together with interest at the Default Rate and reasonable actual out-of-pocket attorneys' fees. Tenant acknowledges that the presentment of sight drafts drawn under any Letter of Credit, or the issuing bank's payment of sight drafts drawn under such Letter of Credit, could not under any circumstances cause Tenant injury that could not be remedied by an award of money damages, and that the recovery of money damages would be an adequate remedy therefor.

(c) **Reduction in Letter of Credit**. Notwithstanding anything to the contrary contained herein, provided that (1) no Event of Default has occurred or is occurring, (2) Tenant receives a minimum of $50,000,000 in additional funding through a Series C funding and/or an initial public offering, and (3) Tenant can demonstrate that its cash flow projections are and will be positive throughout the remainder of the Term, then Tenant shall be permitted to reduce the amount of the Letter of Credit on a one-time basis by $86,253.46 so that the amount of the Letter of Credit remaining after such reduction is $129,380.19. Subject to satisfaction of the foregoing conditions, the amount of the Letter of Credit may be reduced by Tenant's delivery of written notice to Landlord requesting such reduction. Upon Landlord's receipt of such notice and confirmation of Tenant's satisfaction of the foregoing conditions, Tenant shall, at Landlord's request, promptly deliver to Landlord a replacement Letter of Credit which is in the amount of the reduced amount, and which in all other respects is in conformance with the Letter of Credit requirements described in Section 6(b) above. Notwithstanding the foregoing, in no event shall any such reduction be construed as an admission by Landlord that Tenant has performed all of its covenants and obligations hereunder or a waiver of any claims against Tenant. Moreover, if an Event of Default occurs at any time after the occurrence of such reduction, then Tenant shall be required, within five (5) Business Days following Landlord's notice, to restore the Letter of Credit to the Minimum Amount. The foregoing reduction shall be personal to the named Tenant.

7. **Services and Utilities; Common Areas**.

(a) **Services and Utilities**. Landlord shall use all reasonable efforts to furnish or cause to be furnished to the Premises the utilities and services described in the Standards for Services and Utilities, attached hereto as Exhibit B, subject to the conditions and in accordance with the standards set forth therein. Landlord's obligation to furnish services pursuant to Exhibit B shall be subject to the rules and regulations of the supplier of such services and governmental rules and regulations. Landlord shall use reasonable efforts to restore any service required of it that becomes unavailable; however, such unavailability shall not render Landlord liable for any damages caused thereby, be a constructive eviction of Tenant, constitute a breach of any implied warranty, or entitle Tenant to any abatement of Tenant's obligations hereunder. Notwithstanding the foregoing, if: (i) any such utility service is interrupted because of the grossly negligent acts of Landlord, its employees, agents or contractors; (ii) Tenant notifies Landlord of such interruption in writing (the "**Interruption Notice**"); (iii) such interruption does not arise in whole or in part as a result of an act or omission of a Tenant Party; (iv) such interruption is not caused by a fire or other Casualty; (v) the repair or restoration of such service is reasonably within the control of Landlord; and (vi) as a result of such interruption, the Premises or a material portion thereof, is rendered untenantable (meaning that Tenant is unable to use the Premises in the normal course of it business) and Tenant in fact ceases to use the Premises, or material portion thereof, then, Tenant's sole remedy for such interruption shall be as follows: on the tenth (10th) consecutive Business Day following the latest to occur of the date the Premises (or material portion thereof) becomes untenantable, the date Tenant ceases to use such space and the date Tenant provides Landlord with an Interruption Notice, the Rent payable hereunder shall be abated on a per diem basis for each day after such ten (10) Business Day period based upon the percentage of the Premises so rendered untenantable and not used by Tenant, and such abatement shall continue until the date the Premises become tenantable again.

(b) **Common Areas**. The term "**Common Area**" is defined for all purposes of this Lease as those parts of the Project intended for the common use of all tenants, including the ground floor lobby, elevator lobbies, elevators, stairwells, hallways, the Parking Garage, including sidewalks, restrooms, communal conference room, electrical and telephone rooms, mailroom, bike storage, and the like, but excluding space in the Building designated for rental for commercial purposes. In addition, although the roofs of the Project are not literally part of the Common Area, they will be deemed to be so included for purposes of: (i) Landlord's ability to prescribe rules and regulations regarding same and (ii) their inclusion for purposes of Operating Costs reimbursements. Landlord reserves the right to change from time to time the dimensions and location of the Common Area, as well as the dimensions, identities, locations and types of any signs or other improvements in the Project. Tenant and its employees and invitees, and when duly authorized pursuant to the provisions of this Lease, its subtenants, licensees and concessionaires, shall have the non-exclusive right to use the Common Area (excluding the roofs) as constituted from time to time, such use to be in common with Landlord, other tenants in the Project and other persons permitted by Landlord to use the same, and subject to the rights of governmental authorities, easements, other restrictions of record, and such reasonable rules and regulations governing use as Landlord may from time to time prescribe. Without limiting the generality of the foregoing, Landlord may temporarily close any part of the Common Area for such periods of time as may be necessary to make repairs or alterations or to prevent the public from obtaining prescriptive rights.

(c) **Trash and Recycling and Waste Management**. Tenant shall store all trash and garbage within the Premises. Landlord shall arrange for the regular pick-up of such trash and garbage, and Tenant shall be charged an equitable portion of the total of the charges to all tenants using the service. Receiving and delivery of goods and merchandise and removal of garbage and trash shall be made only in the manner and areas prescribed by Landlord. Tenant shall not operate an incinerator or burn trash or garbage within the Project. Tenant covenants and agrees, at its sole cost and expense: (i) to comply with all present and future Laws, orders and regulations of the federal, state, county, municipal or other governing authorities, departments, commissions, agencies and boards regarding the collection, sorting, separation, and recycling of garbage, trash, rubbish and other refuse (collectively, "**trash**"); (ii) to comply with Landlord's recycling policy for the Project as part of Landlord's energy efficient and environmentally sustainable practices ("**Landlord's Sustainability Initiative**") where it may be more stringent than applicable Law; (iii) to sort and separate its trash and recycling into such categories as are provided by Law or Landlord's Sustainability Initiative; (iv) that each separately sorted category of trash and recycling shall be placed in separate receptacles as directed by Landlord; (v) that Landlord reserves the right to require Tenant to arrange for such collection utilizing a contractor reasonably satisfactory to Landlord; and (vi) that Tenant shall pay all costs, expenses, fines, penalties or damages that may be imposed on Landlord or Tenant by reason of Tenant's failure to comply with the provisions of this Section. Tenant shall provide Landlord as reasonably requested with a copy of waste manifests for all waste that leaves the Building that is within Tenant's direct control, including consumable waste, recyclable waste, pallets, off-site paper shredding and electronic waste.

(d) **On-site Power**. Landlord shall have the right to install on-site power (i.e., solar or small wind) at the Building or the Project. Tenant agrees to reasonably cooperate with Landlord in connection with the installation and on-going operation of such on-site power. Tenant shall have no right to any renewable energy credits resulting from on-site renewable energy generation, even if Tenant uses such energy. Landlord may retain or assign such renewable energy credits in Landlord's sole discretion.

(e) **Consumption Data**. Tenant shall within ten (10) days of written request by Landlord, provide consumption data in form reasonably required by Landlord: (ix) for any utility billed directly to Tenant and any subtenant or licensee; and (y) for any submetered or separately metered utility supplied to the Premises for any above-Building standard equipment and for which Landlord is not responsible for reading. If Tenant utilizes separate services from those of Landlord, Tenant hereby consents to Landlord obtaining the information directly from such service providers and, upon ten (10) days' prior written request, Tenant shall execute and deliver to Landlord and the service providers such written releases as the service providers may request evidencing Tenant's consent to deliver the data to Landlord. Any information provided hereunder shall be held confidential except for its limited use to evidence compliance with any sustainability standards. If Tenant fails to deliver any release or to provide any information requested hereunder within the ten (10)-day period, then Landlord may charge Tenant the sum of $100.00 per day for each day after the ten (10) day period until delivered (the "**Late Reporting Fee**"), in addition to any other rights or remedies afforded to Landlord for an Event of Default pursuant to Section 17 of this Lease. A Tenant Party shall not use, nor allow any of its parent, subsidiary or affiliated entities or architects, engineers, or other consultants or advisors to use, any of such consumption data or other information to challenge any sustainability score, rating, certification or other approval granted by any third party.

(f) **Benchmarkinq**. When energy and/or water benchmarking are required by local, state or federal codes, Tenant shall reasonably cooperate with Landlord to comply with such Laws. If Tenant fails to cooperate within ten (10) days of written request, Landlord may charge Tenant the Late Reporting Fee for each day after such ten (10)-day period that Tenant fails to so cooperate, in addition to any other rights or remedies afforded to Landlord for an Event of Default

pursuant to Section 17 of this Lease. If the results of such benchmarking reveal an energy or water performance score that requires audit and/or commissioning studies to be performed, Tenant shall cooperate fully and promptly reimburse Landlord for the reasonable cost of such audits and/or commissioning. Furthermore, if the results of such audits and commissioning reveal opportunities to improve efficiencies through Tenant operations, Tenant shall make every reasonable effort to take such corrective measures.

(g) **Data Center**. Tenant may not operate a Data Center within the Premises without the express written consent of Landlord. The term "**Data Center**" shall have the meaning set forth in the U.S. Environmental Protection Agency's ENERGY STAR® program and is a space specifically designed and equipped to meet the needs of high-density computing equipment, such as server racks, used for data storage and processing. The space will have dedicated, uninterruptible power supplies and cooling systems. Data Center functions may include traditional enterprise services, on-demand enterprise services, high-performance computing, internet facilities and/or hosting facilities. A Data Center does not include space within the Premises utilized as a "server closet" or for a computer training area. In conjunction with the completion and operation of the Data Center, Tenant shall furnish the following information to Landlord:

(i) Within ten (10) days of completion, Tenant shall report to Landlord the total Rentable Area (in square feet) of the Data Center measured between the principal exterior surfaces of the enclosing fixed walls and including all supporting functions dedicated for use in the Data Center, such as any raised-floor computing space, server rack aisles, storage silos, control console areas, battery rooms, mechanical rooms for cooling equipment, administrative office areas, elevator shafts, stairways, break rooms and restrooms. If Tenant alters or modifies the area of the Data Center, Tenant shall furnish an updated report to Landlord on the square footage within ten (10) days following completion of the alterations or modifications.

(ii) Within ten (10) days following the close of each month of operation of the Data Center, monthly IT Energy Readings at the output of the Uninterruptible Power Supply (UPS), measured in total kWh utilized for the preceding month (as opposed to instantaneous power readings), failing which in addition to same being an Event of Default, Tenant shall be obligated to pay to Landlord the Late Reporting Fee.

8. **Alterations; Repairs; Maintenance; Signs**.

(a) **Alterations.** Tenant shall not make any alterations, additions or improvements to the Premises (collectively, the "**Alterations**") without the prior written consent of Landlord (which consent shall not be unreasonably withheld or delayed), except for (a) the installation of unattached, movable trade fixtures which may be installed without drilling, cutting or otherwise defacing the Premises and (b) Alterations that are cosmetic in nature and do not affect the Building's Structure or any Building's System, do not require permits, and are anticipated to cost less than $25,000 ("**Permitted Alterations**"). Tenant shall furnish complete plans and specifications to Landlord for its approval at the time Tenant requests Landlord's consent to any Alterations. Subsequent to obtaining Landlord's consent and prior to commencement of the Alterations, Tenant shall deliver to Landlord any building permit required by applicable Law and a copy of the executed construction contract(s). Tenant shall give written notice to Landlord at least ten (10) Business Days prior to beginning any construction, and Landlord may post on and about the Premises or the Project notices of non-responsibility pursuant to applicable Laws. Tenant shall reimburse Landlord within thirty (30) days after the rendition of a bill for all of Landlord's actual out-of-pocket costs incurred in connection with any Alterations, including all management, engineering, outside consulting and construction fees incurred by or on behalf of

Landlord for the review and approval of Tenant's plans and specifications and for the monitoring of construction of the Alterations not to exceed three percent (3%) of the hard costs of such Alterations. If Landlord consents to the making of any Alteration, such Alteration shall be made by Tenant at Tenant's sole cost and expense by a contractor reasonably approved in writing by Landlord. Without Landlord's prior written consent, Tenant shall not use any portion of the Common Areas in connection with the making of any Alterations. If the Alterations which Tenant causes to be constructed result in Landlord being required to make any alterations and/or improvements to other portions of the Project in order to comply with any applicable Laws, then Tenant shall reimburse Landlord upon demand for all costs and expenses incurred by Landlord in making such alterations and/or improvements. Any Alterations made by Tenant shall become the property of Landlord upon installation and shall remain on and be surrendered with the Premises upon the expiration or sooner termination of this Lease, unless Landlord requires the removal of such Alterations. Notwithstanding the foregoing, upon Tenant's written request at the time it seeks Landlord's consent to an Alteration, Landlord agrees to indicate in writing whether it will require such Alteration to be removed upon the expiration or earlier termination of the Lease. If Landlord requires the removal of such Alterations, Tenant shall at its sole cost and expense, prior to the Expiration Date or the last day of the Renewal Term (as defined in Exhibit G), as the case may be, or earlier termination of this Lease, remove all or any portion of any Alterations made by Tenant which are designated by Landlord to be removed and repair and restore the Premises in a good and workmanlike manner to their original condition, reasonable wear and tear excepted (collectively, the "**Removal and Restoration Work**"); provided, however, at Landlord's election, in lieu of having Tenant perform the Removal and Restoration Work, Tenant shall pay Landlord, within five (5) days following Landlord's demand, an amount equal to the actual out-of-pocket cost of performing the Removal and Restoration Work, and Landlord shall have the right (but not the obligation) to perform such work on Tenant's behalf. All construction work done by Tenant within the Premises shall be performed in accordance with all Laws, in a good and workmanlike manner with new materials of first-class quality, lien-free, and in such manner as to cause a minimum of interference with the transaction of business at the Project. All work which may affect the Building's Structure or the Building's Systems, at Landlord's election, must be performed by Landlord's usual contractor for such work. All work affecting the roof of the Project must be performed by Landlord's roofing contractor and no such work will be permitted if it would void or reduce the warranty on the roof. In all events, Tenant shall be required to use union labor in connection with any initial improvements and all Alterations. Tenant agrees to indemnify, defend and hold Landlord, its Affiliates, Harvest Properties, Inc. ("**Harvest**"), Cerberus Real Estate Capital Management, LLC, a Delaware limited liability company ("**Cerberus**"), and Landlord's Property Manager, and their respective officers, directors, partners, members, shareholders, employees and agents (collectively, the "**Indemnitees**") harmless against any loss, liability or damage resulting from such work performed by or at the request of Tenant (except for the Work), and Tenant shall, if requested by Landlord, furnish a bond or other security satisfactory to Landlord against any such loss, liability or damage. The foregoing indemnity shall survive the expiration or earlier termination of this Lease. Landlord's consent to or approval of any Alterations (or the plans therefor) shall not constitute a representation or warranty by Landlord, nor Landlord's acceptance, that the same comply with sound architectural and/or engineering practices or with all applicable Laws, and Tenant shall be solely responsible for ensuring all such compliance. All voice, data, video, audio and other low voltage control transport system cabling and/or cable bundles installed in the Building by Tenant or its contractor shall be (i) plenum rated and/or have a composition make-up suited for its environmental use in accordance with NFPA 70/National Electrical Code; (ii) labeled every 3 meters with Tenant's name and origination and destination points; (iii) installed in accordance with all EIA/TIA standards and the National Electric Code; and (iv) installed and routed in accordance with a routing plan showing "as built" or "as installed" configurations of cable pathways, outlet identification numbers, locations of all wall, ceiling and floor penetrations, riser cable routing and conduit routing (if applicable), and such other information as Landlord may reasonably request. The routing plan shall be available to Landlord and its agents at the Project upon request.

(b) **Repairs; Maintenance**.

(i) **By Landlord**. Landlord shall, subject to reimbursement to the extent set forth in Section 4, keep and maintain in good repair and working order and make repairs to and perform maintenance upon: (1) the Building's Structure; (2) Building standard mechanical (including HVAC), electrical, heating, plumbing and fire/life safety systems serving the Project generally; (3) Common Areas; (4) the roof of the Building; (5) exterior windows of the Project; and (6) elevators serving the Building. Landlord shall not be liable for any failure to make any such repairs or to perform any maintenance unless such failure shall persist for an unreasonable time after written notice of the need for such repairs or maintenance is given to Landlord by Tenant. If any of the foregoing maintenance or repair is necessitated due to the acts or omissions of any Tenant Party, Tenant shall pay the costs of such repairs or maintenance to Landlord within thirty (30) days after receipt of an invoice, together with an administrative charge in an amount equal to ten percent (10%) of the cost of the repairs. Landlord shall not be liable to Tenant for any interruption of Tenant's business or inconvenience caused due to any work performed in the Premises or in the Project pursuant to Landlord's rights and obligations under the Lease. Notwithstanding the foregoing, Landlord shall use commercially reasonable efforts to minimize interference with Tenant's business operations and access to the Premises in making such repairs. To the extent allowed by law, Tenant waives the right to make repairs at Landlord's expense under Sections 1941 and 1942 of the California Civil Code, and the right to terminate the Lease under Section 1932(1) of the California Civil Code, and any other laws, statutes or ordinances now or hereafter in effect of like import. Notwithstanding the foregoing, if: (i) the Premises or a material portion thereof, is rendered untenantable (meaning that Tenant is unable to use the Premises in the normal course of it business) because of the grossly negligent performance of any repair or maintenance work by Landlord, its employees, agents or contractors, or grossly negligent failure to perform any repair or maintenance work that Landlord is responsible for performing pursuant to this Lease; (ii) Tenant provides an Interruption Notice with respect thereto; (iii) such condition does not arise in whole or in part as a result of an act or omission of a Tenant Party; (iv) such condition is not caused by a fire or other Casualty; and (v) the cause of such condition is reasonably within the control of Landlord, then, Tenant's sole remedy therefor shall be as follows: on the tenth (10th) consecutive Business Day following the latest to occur of the date the Premises (or material portion thereof) becomes untenantable, the date Tenant ceases to use such space and the date Tenant provides Landlord with an Interruption Notice, the Rent payable hereunder shall be abated on a per diem basis for each day after such ten (10) Business Day period based upon the percentage of the Premises so rendered untenantable and not used by Tenant, and such abatement shall continue until the date the Premises become tenantable again.

(ii) **By Tenant**. Tenant shall, at its sole cost and expense, promptly perform all maintenance and repairs to the Premises that are not Landlord's express responsibility under this Lease, and shall keep the Premises in good condition and repair, ordinary wear and tear and Casualty excepted. Tenant's repair obligations include repairs to: (1) floor coverings and/or raised flooring; (2) interior partitions; (3) doors; (4) the interior side of demising walls; (5) electronic, phone and data cabling and related equipment that is installed by or for the benefit of Tenant and located in the Premises or other portions of the Building; (6) air conditioning units serving Tenant exclusively (if applicable); (7) any kitchen equipment or similar facilities serving Tenant exclusively (if applicable); (8) phone rooms used exclusively by Tenant; (9) Alterations

performed by contractors retained by or on behalf of Tenant, including related HVAC balancing; and (10) all of Tenant's furnishings, trade fixtures, equipment and personal property. If Tenant fails to commence any such needed repairs within five (5) days of Landlord's written request, Landlord reserves the right to perform any of the foregoing maintenance or repair obligations (other than with respect to subsection (10)) or require that such obligations be performed by a contractor reasonably approved by Landlord, all at Tenant's expense. All work shall be performed in accordance with the rules and procedures described in Section 8(a), except that any repairs in the ordinary course constituting Permitted Alterations shall not require prior notice to Landlord or Landlord's prior consent thereto. If Tenant fails to make any repairs to the Premises for more than fifteen (15) days after notice from Landlord (although notice shall not be required if there is an emergency, or if the area to be repaired is visible from the exterior of the Project), Landlord may, in addition to any other remedy available to Landlord, make the repairs, and Tenant shall pay the reasonable cost of the repairs to Landlord within thirty (30) days after receipt of an invoice, together with an administrative charge in an amount equal to ten percent (10%) of the cost of the repairs. At the expiration or sooner termination of this Lease, Tenant shall surrender the Premises in good condition, excepting reasonable wear and tear and losses required to be restored by Landlord. All personal property of Tenant, including goods, wares, merchandise, inventory, trade fixtures and other personal property of Tenant, shall be stored at the sole risk of Tenant. Except to the extent caused by the gross negligence or willful misconduct of Landlord or its agents, Landlord or its agents shall not be liable under any circumstances for any loss or damage to persons or property resulting from fire, explosion, falling plaster, steam, gas, electricity, water or rain which may leak from any part of the Project or from the pipes, appliances or plumbing works therein or from the roof, street, sidewalks or subsurface or from any other places resulting from dampness or any other cause whatsoever, or from the act or negligence of any other tenant or any officer, agent, employee, contractor or invitee of any such tenant, it being understood that Tenant's sole recourse in the event of any such loss, injury or damage will be to file a claim on the insurance policies that Tenant is required to maintain pursuant to Section 11(a). It is generally understood that mold spores are present essentially everywhere and that mold can grow in most any moist location. Emphasis is properly placed on prevention of moisture and on good housekeeping, ventilation and moisture control practices. Tenant shall promptly report any maintenance problems involving water, moist conditions or mold to the property manager for the Project (the "**Property Manager**"), and shall conduct its activities in the Building in a manner that prevents unusual moisture conditions or mold growth. In signing this Lease, Tenant has first inspected the Premises and certifies that it has not observed mold, mildew or moisture within the Premises. Tenant relieves Landlord from any liability for any bodily injury or damages to property caused by or associated with moisture or the growth of or occurrence of mold or mildew on the Premises.

(iii) **Performance of Work**. All work described in this Section 8 undertaken by Tenant shall be performed only by contractors and subcontractors approved in writing by Landlord and shall be subject to the terms of this Section 8(b)(iii). Tenant shall cause all contractors and subcontractors to procure and maintain insurance coverage against such risks, in such amounts, and with such companies as Landlord may reasonably require, but in no event less than: (i) Commercial General Liability insurance on an occurrence basis in amounts not less than $2,000,000 ($1,000,000 of which may be in excess umbrella coverage) naming Landlord, Harvest, Cerberus, and the Property Manager as additional insureds for ongoing and completed operations using ISO Forms CG 2010 04/13 and CG 2037 04/13 (or other equivalent forms approved in writing by Landlord); (ii) workers' compensation insurance in amounts required by statute and employer's liability coverage with limits of not less than $500,000 each accident for bodily injury by accident, $500,000 each employee for bodily injury by disease, and $500,000 policy limit for bodily injury by disease; (iii) Business Automobile Liability insurance on an

occurrence basis in amounts not less than $1,000,000 naming Landlord, Harvest, Cerberus, and the Property Manager as additional insureds; and (iv) Umbrella/Excess Liability with limits of not less than $5,000,000 per occurrence in excess of (i-iii) above for trades such as escalator/elevator maintenance, signage, plumbing, electrical and window washing. Coverage shall be written as follow form or alternately with a form that provides coverage that is at least as broad as the primary policies. Each policy shall include a waiver of subrogation in favor of Landlord, the Property Manager and Cerberus. Tenant shall provide Landlord with insurance certificates for such contractors and subcontractors prior to commencement of any work. Tenant shall provide Landlord with the identities, mailing addresses and telephone numbers of all persons performing work or supplying materials prior to beginning such construction and Landlord may post on and about the Premises notices of non-responsibility pursuant to applicable Laws. All such work shall be performed in accordance with all Laws and in a good and workmanlike manner so as not to damage the Building (including the Premises, the Building's Structure and the Building's Systems). All such work which may affect the Building's Structure or the Building's Systems, at Landlord's election, must be performed by Landlord's usual contractor for such work or a contractor approved by Landlord. All work affecting the roof of the Building must be performed by Landlord's roofing contractor or a contractor approved by Landlord and no such work will be permitted if it would void or reduce the warranty on the roof. Any and all Alterations performed by Tenant will be performed in accordance with Landlord's "Contractor Rules and Regulations" attached hereto as Exhibit C-1 and the Energy and Sustainability Construction Guidelines and Requirements attached hereto as Exhibit C-2, and any modifications thereto by Landlord, notwithstanding any more permissive local building codes or ordinances.

(c) **Mechanic's Liens**. All work performed, materials furnished, or obligations incurred by or at the request of a Tenant Party (other than the Work) shall be deemed authorized and ordered by Tenant only, and Tenant shall not permit any mechanic's liens to be filed against the Premises or the Project in connection therewith. Upon completion of any such work, Tenant shall deliver to Landlord final lien waivers from all contractors, subcontractors and materialmen who performed such work. If such a lien is filed, then Tenant shall, within ten (10) days after Landlord has delivered notice of the filing thereof to Tenant, either: (1) pay the amount of the lien and cause the lien to be released of record; or (2) diligently contest such lien and deliver to Landlord a bond or other security reasonably satisfactory to Landlord. If Tenant fails to timely take either such action, then Landlord may pay the lien claim, and any amounts so paid, including expenses and interest, shall be paid by Tenant to Landlord within thirty (30) days after Landlord has invoiced Tenant therefor. Tenant shall indemnify, defend and hold harmless the Indemnitees from and against all claims, demands, causes of action, suits, judgments, damages and expenses (including attorneys' fees) in any way arising from or relating to the failure by any Tenant Party to pay for any work performed, materials furnished, or obligations incurred by or at the request of a Tenant Party (other than the Work). The foregoing indemnity shall survive the expiration or earlier termination of this Lease.

(d) **Signs**. Tenant shall not place or permit to be placed any signs, placards, pictures, advertisements or notices upon the Common Areas or any area visible from the exterior of the Premises without Landlord's prior written consent. Notwithstanding the foregoing, Tenant shall be permitted to install its name in the Building lobby directory and Building standard signage on the main entry door of the Premises, and such signage shall be provided and installed by Landlord on or about the Commencement Date at Landlord's cost. Upon request of Landlord, Tenant shall immediately remove any sign, advertising material or lettering which Tenant has placed or permitted to be placed upon the exterior or interior surface of any door or window or at any point inside the Premises, which in Landlord's reasonable opinion, is of such a nature as to not be in keeping with the standards of the Building, and if Tenant fails to do so, Landlord may without liability remove the same at Tenant's expense.

9. **Use**. Tenant shall use the Premises only for the Permitted Use and shall comply with all Laws relating to the use, condition, access to, and occupancy of the Premises and will not commit waste, overload the Building's Structure or the Building's Systems or subject the Premises to any use that would damage the Premises. Tenant, at its sole cost and expense, shall obtain and keep in effect during the Term, all permits and licenses necessary to permit Tenant to use and occupy the Premises for the Permitted Use in accordance with applicable Law. Notwithstanding anything in this Lease to the contrary, as between Landlord and Tenant, Tenant shall bear the risk of complying with Title III of the Americans With Disabilities Act of 1990, any state laws governing handicapped access or architectural barriers, and all rules, regulations and guidelines promulgated under such laws, as amended from time to time (the "**Disabilities Acts**") in the Premises. Further, Landlord shall be responsible for compliance with Disabilities Acts in the Common Area and with respect to the path of travel to the Premises, unless any non-compliance is caused by or attributable to (a) any Alterations performed by or at Tenant's request (other than the Work), or (b) Tenant's specific use of the Premises (as opposed to general office use). If Tenant's initial use of the Premises is not a "place of public accommodation" within the meaning of the Disabilities Acts, then Tenant may not thereafter change the use to cause the Premises to become a "place of public accommodation". In addition, the Premises shall not be used for any purpose which creates strong or offensive odors, fumes, dust or vapors; which emits noise or sounds that are objectionable due to intermittence, beat, frequency, shrillness or loudness; or which is associated with indecent or pornographic matters. Tenant shall conduct its business and control each other Tenant Party so as not to create any nuisance or unreasonably interfere with other tenants or Landlord in its management of the Project. Tenant shall not knowingly conduct or permit to be conducted in the Premises any activity, or place any equipment in or about the Premises or the Project, which will invalidate the insurance coverage in effect or increase the rate of fire insurance or other insurance on the Premises or the Project. If any invalidation of coverage or increase in the rate of fire insurance or other insurance occurs or is threatened by any insurance company due to activity conducted from the Premises, such statement or threat shall be conclusive evidence that the increase in such rate is due to such activity of Tenant and, as a result thereof, Tenant shall be liable for the payment of such increase as additional Rent. In no event shall Tenant introduce or permit to be kept on the Premises or brought into the Project any dangerous, noxious, radioactive or explosive substance. Tenant agrees to comply with and cooperate with Landlord's efforts to comply with energy efficiency, green building and/or carbon reduction laws, including occupant, water, energy and transportation surveys within the city, county, state or any other jurisdiction.

10. **Assignment and Subletting**.

(a) **Transfers**. Tenant shall not, without the prior written consent of Landlord, which consent shall not be unreasonably withheld or delayed, (1) assign, transfer or encumber this Lease or any estate or interest herein, whether directly or by operation of law; (2) permit any other entity to become Tenant hereunder by merger, consolidation or other reorganization; (3) if Tenant is an entity other than a corporation whose stock is publicly traded, permit the transfer of an ownership interest in Tenant so as to result in a change in the current control of Tenant; (4) sublet any portion of the Premises; (5) grant any license, concession or other right of occupancy of any portion of the Premises; or (6) permit the occupancy of the Premises by any parties other than Tenant (any of the events listed in Section 10(a)(1) through Section 10(a)(6) being a "**Transfer**").

(b) **Consent Standards**. Landlord shall not unreasonably withhold or delay its consent to any assignment or subletting of the Premises provided that Tenant is not then in default under the Lease and the proposed transferee: (1) is creditworthy as determined by Landlord in its good faith business judgment; (2) has a good reputation in the business community as determined by Landlord in its good faith business judgment; (3) will use the Premises for the Permitted Use and will not use the Premises for a purpose that would violate any exclusive use or other similar agreement entered into by Landlord with any other tenant of the Building; (4) will not use the Premises in a manner that would materially increase the pedestrian traffic to the Premises; (5) is not a governmental entity, or subdivision or agency thereof; (6) is not another occupant of the Building; and (7) is not a person or entity with whom Landlord is then, or has been within the six month period prior to the time Tenant seeks to enter into such assignment or subletting, negotiating to lease space in the Building, or any Affiliate of any such person or entity (all of the foregoing Section 10(b)(1) through Section 10(b)(7) being deemed reasonable bases for withholding consent). Landlord shall have no obligation to consent to any requested Transfer if Tenant is then in default under this Lease beyond applicable notice and cure periods.

(c) **Request for Consent**. If Tenant requests Landlord's consent to a Transfer (which consent shall not be unreasonably withheld or delayed), then, at least thirty (30) days prior to the effective date of the proposed Transfer, Tenant shall provide Landlord with a written description of all terms and conditions of the proposed Transfer, copies of the proposed pertinent documentation, and the following information about the proposed transferee: name and address; reasonably satisfactory information about its business and business history; its proposed use of the Premises; banking, financial and other credit information; and general references sufficient to enable Landlord to determine the proposed transferee's creditworthiness and character. Concurrently with Tenant's notice of any request for consent to a Transfer, Tenant shall pay to Landlord a fee of $1,000 to defray Landlord's expenses in reviewing such request, and Tenant shall also reimburse Landlord within thirty (30) days of request for Landlord's reasonable attorneys' fees incurred in connection with considering any request for consent to a Transfer, not to exceed $2,500 per request, provided, however, if Tenant requires more than two (2) rounds of comments, then such limit shall not apply. Landlord shall use commercially reasonable efforts to respond to Tenant's request for a Transfer within thirty (30) days after Landlord's receipt of the materials and fee required by this Section 10(c). If Landlord fails to respond to Tenant's request for a Transfer within such thirty (30) day period, Tenant may send a second written request, which request shall contain, in bold, capital letters, the following:

"THIS NOTICE CONSTITUTES TENANT'S SECOND NOTICE OF ITS REQUEST FOR CONSENT TO A TRANSFER PURSUANT TO SECTION 10(c) OF THE LEASE; LANDLORD'S FAILURE TO RESPOND TO THIS NOTICE WITHIN TEN (10) BUSINESS DAYS SHALL BE DEEMED LANDLORD'S CONSENT TO THE REQUESTED TRANSFER." If Landlord fails to respond to such second notice within ten (10) Business Days after receipt of such notice, Tenant's request for the applicable Transfer shall be deemed approved.

(d) **Conditions to Consent**. If Landlord consents to a proposed Transfer, then the proposed transferee shall deliver to Landlord a written agreement whereby it expressly assumes Tenant's obligations hereunder; however, any transferee of less than all of the space in the Premises shall be liable only for obligations under this Lease that are properly allocable to the space subject to the Transfer for the period of the Transfer. No Transfer shall release Tenant from its obligations under this Lease, but rather Tenant and its transferee shall be jointly and severally liable therefor. Landlord's consent to any Transfer shall not be deemed consent to any subsequent Transfers. If an Event of Default occurs while the Premises or any part thereof are subject to a Transfer, then Landlord, in addition to its other remedies, may collect directly from such transferee all rents becoming due to Tenant and apply such rents against Rent. Tenant authorizes its transferees to make payments of rent directly to Landlord upon receipt of notice from Landlord to do so following the occurrence of an Event of Default hereunder.

(e) **Cancellation**. Landlord may, within thirty (30) days after submission of Tenant's written request for Landlord's consent to an assignment or a sublease of fifty percent (50%) or more of the Premises, cancel this Lease as to the portion of the Premises proposed to be sublet or assigned as of the date the proposed Transfer is to be effective. If Landlord cancels this Lease as to any portion of the Premises, then this Lease shall cease for such portion of the Premises, Tenant shall pay to Landlord all Rent accrued through the cancellation date relating to the portion of the Premises covered by the proposed Transfer, and Rent shall be reduced proportionately based on the remaining square footage in the Premises. Thereafter, Landlord may lease such portion of the Premises to the prospective transferee (or to any other person) without liability to Tenant.

(f) **Additional Compensation**. Tenant shall pay to Landlord, immediately upon receipt thereof, fifty percent (50%) of the excess of all compensation received by Tenant for a Transfer over the Rent allocable to the portion of the Premises covered thereby, after deducting the following costs and expenses for such Transfer (which costs will be amortized over the term of the sublease or assignment pursuant to sound accounting principles and deducted monthly from such excess): (1) brokerage commissions (not to exceed commissions typically paid in the market at the time of such Transfer); (2) reasonable attorneys' fees; and (3) the actual costs paid in making any improvements in the Premises required by any Transfer.

(g) **Attornment by Subtenants**. Each sublease by Tenant hereunder shall be subject and subordinate to this Lease and to the matters to which this Lease is or shall be subordinate, and each subtenant by entering into a sublease is deemed to have agreed that in the event of termination, re-entry or dispossession by Landlord under this Lease, Landlord may, at its option, either terminate the sublease or take over all of the right, title and interest of Tenant, as sublandlord, under such sublease, and such subtenant shall, at Landlord's option, attorn to Landlord pursuant to the then executory provisions of such sublease, except that Landlord shall not be: (i) liable for any previous act or omission of Tenant under such sublease; (ii) subject to any counterclaim, offset or defense that such subtenant might have against Tenant; (iii) bound by any previous modification of such sublease or by any rent or additional rent or advance rent which such subtenant might have paid for more than the current month to Tenant, and all such rent shall remain due and owing, notwithstanding such advance payment; bound by any security or advance rental deposit made by such subtenant which is not delivered or paid over to Landlord and with respect to which such subtenant shall look solely to Tenant for refund or reimbursement; or (v) obligated to perform any work in the subleased space or to prepare it for occupancy, and in connection with such attornment, the subtenant shall execute and deliver to Landlord any instruments Landlord may reasonably request to evidence and confirm such attornment. Each subtenant or licensee of Tenant shall be deemed, automatically upon and as a condition of its occupying or using the Premises or any part thereof, to have agreed to be bound by the terms and conditions set forth in this Section 10(q). The provisions of this Section 10(q) shall be self-operative, and no further instrument shall be required to give effect to this provision.

(h) **Waiver**. Tenant hereby waives any suretyship defenses it may now or hereafter have to an action brought by Landlord including those contained in Sections 2787 through 2856, inclusive, 2899 and 3433 of the California Civil Code, as now or hereafter amended, or similar laws of like import.

(i) **Permitted Transfers**. Notwithstanding Section 10(a), Tenant may Transfer its interest in this Lease (a "**Permitted Transfer**") to the following types of entities (a "**Permitted Transferee**") without the written consent of Landlord:

(i) an Affiliate of Tenant;

(ii) any corporation, limited partnership, limited liability partnership, limited liability company or other business entity in which or with which Tenant, or its corporate successors or assigns, is merged or consolidated, in accordance with applicable statutory provisions governing merger and consolidation of business entities, so long as (A) Tenant's obligations hereunder are assumed by the entity surviving such merger or created by such consolidation; and (B) the Tangible Net Worth of the surviving or created entity is not less than the Tangible Net Worth of Tenant as of as of the date of mutual execution of this Lease, or the date immediately prior to such Transfer, whichever is greater; or

(iii) any corporation, limited partnership, limited liability partnership, limited liability company or other business entity acquiring all or substantially all of Tenant's equity interests or assets if such entity's Tangible Net Worth after such acquisition is not less than the Tangible Net Worth of Tenant as of the date of mutual execution of this Lease, or the date immediately prior to such Transfer, whichever is greater.

Tenant shall promptly notify Landlord of any such Permitted Transfer as soon as permitted by applicable Law. Tenant shall remain liable for the performance of all of the obligations of Tenant hereunder, or if Tenant no longer exists because of a merger, consolidation or acquisition, the surviving or acquiring entity shall expressly assume in writing the obligations of Tenant hereunder. Additionally, the Permitted Transferee shall comply with all of the terms and conditions of this Lease, including the Permitted Use, and the use of the Premises by the Permitted Transferee may not violate any other agreements affecting the Premises, the Building or the Project, Landlord or other tenants of the Project. No later than five (5) Business Days prior to the effective date of any Permitted Transfer (unless prior delivery is prohibited by applicable Law, in which event Tenant shall deliver the following as soon as permitted by applicable Law), Tenant agrees to furnish Landlord with (A) a copy of the instrument effecting such Permitted Transfer, (B) documentation establishing Tenant's satisfaction of the requirements set forth above applicable to any such Transfer, and (C) evidence of insurance as required under this Lease with respect to the Permitted Transferee. The occurrence of a Permitted Transfer shall not waive Landlord's rights as to any subsequent Transfers. "**Tangible Net Worth**" means the excess of total assets over total liabilities, in each case as determined in accordance with GAAP, excluding, however, from the determination of total assets all assets which would be classified as intangible assets under GAAP including goodwill, licenses, patents, trademarks, trade names, copyrights and franchises. Any subsequent Transfer by a Permitted Transferee shall be subject to the terms of this Section 10.

11. **Insurance; Subrogation; Indemnity**.

(a) **Tenant's Insurance Coverages**. Effective as of the earlier of: (i) the date Tenant enters or occupies the Premises; or (ii) the Commencement Date, and continuing throughout the Term, Tenant shall maintain the following insurance policies: (A) commercial general liability insurance of not less than $3,000,000 per occurrence, with an annual aggregate limit of not less than $5,000,000, which shall apply on a per location basis, or, following the expiration of the initial Term, such other amounts as Landlord may from time to time reasonably require (and, if the use and occupancy of the Premises include any activity or matter that is or

may be excluded from coverage under a commercial general liability policy [e.g., the sale, service or consumption of alcoholic beverages], Tenant shall obtain such endorsements to the commercial general liability policy or otherwise obtain insurance to insure all liability arising from such activity or matter [including liquor liability, if applicable] in such amounts as Landlord may reasonably require), insuring Tenant, Landlord, Harvest, Cerberus and the Property Manager against all liability for injury to or death of a person or persons or damage to property arising from the use and occupancy of the Premises, with an additional insured endorsement in form CG 2026 04/13 (or another equivalent form approved in writing by Landlord); (B) Automobile Liability covering any owned, non-owned, leased, rented or borrowed vehicles of Tenant with limits no less than $1,000,000 combined single limit for property damage and bodily injury, naming Landlord, Harvest, Cerberus and the Property Manager as additional insureds; (C) Special Risk Property insurance, which shall include protection against loss or damage from earthquakes, covering the full value of all (x) Alterations installed by Tenant pursuant to Section 8(a) and (y) all furniture, trade fixtures and personal property in the Premises or otherwise placed on the Project by or on behalf of a Tenant Party; (D) contractual liability insurance sufficient to cover Tenant's indemnity obligations hereunder (but only if such contractual liability insurance is not already included in Tenant's commercial general liability insurance policy); (E) worker's compensation insurance in amounts not less than statutorily required, and Employers' Liability insurance with limits of not less than $1,000,000; (F) business interruption insurance in an amount that will reimburse Tenant for all direct or indirect loss of income attributable to all perils insured against by Tenant's property insurance coverage, including the prevention of use of or access to the Premises, naming Tenant, Landlord, Harvest, Cerberus and Landlord's Mortgagee as loss payees with respect to loss of rents coverage; (G) in the event Tenant performs any Alterations or repairs in, on or to the Premises, Builder's Risk Insurance on a Special Risk basis (including collapse) on a completed value (non-reporting) form, or by endorsement including such coverage pursuant to Section 11(a)(C) hereinabove, for the full replacement value covering all work incorporated in the Building and all materials and equipment in or about the Premises; and (H) such other insurance or any changes or endorsements to the insurance required herein, including increased limits of coverage, as Landlord, or any mortgagee of Landlord, may reasonably require from time to time. Tenant's insurance shall provide primary coverage to Landlord and shall not require contribution by any insurance maintained by Landlord, when any policy issued to Landlord provides duplicate or similar coverage, and in such circumstance Landlord's policy will be excess over Tenant's policy. Tenant shall furnish to Landlord certificates of such insurance, with an additional insured endorsement in form CG 2026 04/13 (or another equivalent form approved in writing by Landlord), and such other evidence satisfactory to Landlord of the maintenance of all insurance coverages required hereunder at least ten (10) days prior to the earlier of the Commencement Date or the date Tenant enters or occupies the Premises, and at least fifteen (15) days prior to each renewal of said insurance, and Tenant shall obtain a written obligation on the part of each insurance company to endeavor to notify Landlord at least thirty (30) days before cancellation or a material change of any such insurance policies. All such insurance policies shall be in form reasonably satisfactory to Landlord, and issued by companies licensed to do business in the State of California and with a Best's rating of A:VII or better. If Tenant fails to comply with the foregoing insurance requirements or to deliver to Landlord the certificates or evidence of coverage required herein, and such failure continues for more than five (5) days past written notice to Tenant, Landlord, in addition to any other remedy available pursuant to this Lease or otherwise, may, but shall not be obligated to, obtain such insurance and Tenant shall pay to Landlord, within thirty (30) days of receipt of an invoice, the premium costs thereof, plus an administrative fee of ten percent (10%) of such cost. It is expressly understood and agreed that (1) the foregoing minimum limits of insurance coverage shall not limit the liability of Tenant for its acts or omissions as provided in this Lease and (2) no lack or inadequacy of insurance by Tenant shall make Landlord subject to any claims by virtue of any theft, loss or damage to any uninsured or inadequately insured property.

(b) **Landlord's Insurance Coverages**. Throughout the Term of this Lease, Landlord shall maintain, as a minimum, the following insurance policies: (1) property insurance for the Building's replacement value (excluding property required to be insured by Tenant), less a commercially reasonable deductible if Landlord so chooses; and (2) commercial general liability insurance in an amount of not less than $3,000,000 per occurrence, $5,000,000 annual aggregate. Landlord may, but is not obligated to, maintain such other insurance and additional coverages as it may deem necessary, including protection against loss or damage from earthquakes. Tenant shall pay Tenant's Proportionate Share of the cost of all insurance carried by Landlord with respect to the Project as part of Operating Costs. The foregoing insurance policies and any other insurance carried by Landlord shall be for the sole benefit of Landlord and under Landlord's sole control, and Tenant shall have no right or claim to any proceeds thereof or any other rights thereunder.

(c) **No Subrogation**. Notwithstanding anything to the contrary herein, to the extent permitted by law and without affecting the coverage provided by insurance required to be maintained hereunder, Landlord and Tenant shall each agree to waive any right to recover against the other party (and the other party's agents, officers, directors, members, partners, employees, subtenants and assignees) on account of any and all claims it may have against the other party (and the other party's agents, officers, directors and employees) with respect to the insurance actually maintained, or required to be maintained hereunder, under Sections 11(a)(i) through (vi), inclusive, and to the extent proceeds are realized from such insurance coverage that are applied to such claims. Each policy described in this Lease shall contain a waiver of subrogation endorsement that provides that the waiver of any right to recovery shall not invalidate the policy in any way.

(d) **Indemnity**. Subject to Section 11(c), Tenant shall indemnify, defend (with counsel reasonably satisfactory to Landlord) and hold harmless the Indemnitees from and against all claims, demands, liabilities, causes of action, suits, judgments, damages and expenses (including reasonable attorneys' fees) and all losses and damages arising from: (1) any injury to or death of any person or the damage to or theft, destruction, loss or loss of use of any property or inconvenience arising from any occurrence in the Premises or the use of the Common Areas by any Tenant Party; or (2) Tenant's failure to perform its obligations under this Lease, except to the extent any loss or damage is caused or alleged to be caused by the gross negligence or willful misconduct of Landlord or its agents. This indemnity shall survive the expiration or earlier termination of this Lease. If any proceeding is filed for which indemnity is required hereunder, Tenant agrees, upon request therefor, to defend Landlord in such proceeding at its sole cost utilizing counsel reasonably satisfactory to Landlord.

12. **Subordination; Attornment; Notice to Landlord's Mortgagee**.

(a) **Subordination**. This Lease shall be subject and subordinate to any deed of trust, mortgage or other security instrument (each, as renewed, modified and/or extended from time to time, a "**Mortgage**"), or any ground lease, master lease, or primary lease (each, as renewed, modified and/or extended from time to time, a "**Primary Lease**"), that now or hereafter covers all or any part of the Premises (the mortgagee under any such Mortgage, beneficiary under any such deed of trust, or the lessor under any such Primary Lease is referred to herein as a "**Landlord's Mortgagee**"). Any Landlord's Mortgagee may elect at any time, unilaterally, to make this Lease superior to its Mortgage, Primary Lease, or other interest in the Premises by so

notifying Tenant in writing. The provisions of this Section 12 shall be self-operative and no further instrument of subordination shall be required; however, in confirmation of such subordination, Tenant shall execute and return to Landlord (or such other party designated by Landlord) within ten (10) Business Days after written request therefor such commercially reasonable documentation, in recordable form if required, as a Landlord's Mortgagee may reasonably request to evidence the subordination of this Lease to such Landlord's Mortgagee's Mortgage or Primary Lease (including a subordination, non-disturbance and attornment agreement) or, if the Landlord's Mortgagee so elects, the subordination of such Landlord's Mortgagee's Mortgage or Primary Lease to this Lease. Notwithstanding any such subordination, Tenant's right to possession of the Premises shall not be disturbed so long as Tenant is not in default under the terms of this Lease.

(b) **Attornment**. Tenant shall attorn to any party succeeding to Landlord's interest in the Premises, whether by purchase, foreclosure, deed in lieu of foreclosure, power of sale, termination of lease, or otherwise, upon such party's request, and shall execute such agreements confirming such attornment as such party may reasonably request.

(c) **Notice to Landlord's Mortgagee**. Tenant shall not seek to enforce any remedy it may have for any default on the part of Landlord without first giving written notice by certified mail, return receipt requested, specifying the default in reasonable detail, to any Landlord's Mortgagee whose address has been given to Tenant in writing, and affording such Landlord's Mortgagee a reasonable opportunity to perform Landlord's obligations hereunder.

(d) **Landlord's Mortgagee's Protection Provisions**. If Landlord's Mortgagee shall succeed to the interest of Landlord under this Lease, Landlord's Mortgagee shall not be: (1) liable for any act or omission of any prior lessor (including Landlord); (2) bound by any rent or additional rent or advance rent which Tenant might have paid for more than one (1) month in advance to any prior lessor (including Landlord), and all such rent shall remain due and owing, notwithstanding such advance payment; (3) bound by any security or advance rental deposit made by Tenant which is not delivered or paid over to Landlord's Mortgagee and with respect to which Tenant shall look solely to Landlord for refund or reimbursement; (4) bound by any termination, amendment or modification of this Lease made without Landlord's Mortgagee's consent and written approval, except for those terminations, amendments and modifications permitted to be made by Landlord without Landlord's Mortgagee's consent pursuant to the terms of the loan documents between Landlord and Landlord's Mortgagee; (5) subject to the defenses which Tenant might have against any prior lessor (including Landlord); and (6) subject to the offsets which Tenant might have against any prior lessor (including Landlord) except for those offset rights which (A) are expressly provided in this Lease, (B) relate to periods of time following the acquisition of the Building by Landlord's Mortgagee, and (C) Tenant has provided written notice to Landlord's Mortgagee and provided Landlord's Mortgagee a reasonable opportunity to cure the event giving rise to such offset event. Landlord's Mortgagee shall have no liability or responsibility under or pursuant to the terms of this Lease or otherwise after it ceases to own an interest in the Building. Nothing in this Lease shall be construed to require Landlord's Mortgagee to see to the application of the proceeds of any loan, and Tenant's agreements set forth herein shall not be impaired on account of any modification of the documents evidencing and securing any loan.

13. **Rules and Regulations**. Tenant shall comply with the rules and regulations of the Building which are attached hereto as Exhibit D. Landlord may, from time to time, change such rules and regulations for the safety, care or cleanliness of the Project, provided that such changes are applicable to all tenants of the Building, will not unreasonably interfere with Tenant's use of

the Premises and are enforced by Landlord in a non-discriminatory manner. Tenant shall comply with all modifications to the rules and regulations upon receipt of written notice thereof. Tenant shall be responsible for the compliance with such rules and regulations by each Tenant Party. In the event of any conflict between the terms of this Lease and such rules and regulations, the terms of this Lease shall control.

14. **Condemnation**. If the entire Building or Premises are taken by right of eminent domain or conveyed in lieu thereof (a "**Taking**"), this Lease shall terminate as of the date of the Taking. If any material portion, but less than all, of the Building becomes subject to a Taking, then Landlord may terminate this Lease by delivering written notice thereof to Tenant within thirty (30) days after such Taking, and Rent shall be apportioned as of the date of such Taking. If Landlord does not so terminate this Lease, then this Lease will continue, but if any portion of the Premises has been taken, then Rent shall be abated on a reasonable basis as to that portion of the Premises rendered untenantable by the Taking. If any Taking occurs, then Landlord shall receive the entire award or other compensation for the Building, the Land, and any other improvements taken; however, Tenant may separately pursue a claim (to the extent it will not reduce Landlord's award) against the condemnor for the value of Tenant's personal property which Tenant is entitled to remove under this Lease, moving costs, loss of business, and other claims it may have. If the Lease is not terminated, Landlord shall proceed with reasonable diligence to restore the remaining part of the Premises and the Building substantially to their former condition to the extent feasible to constitute a complete and tenantable Premises and Building; provided, however, that Landlord shall only be required to reconstruct building standard leasehold improvements existing in the Premises as of the date of the Taking, and Tenant shall be required to pay the cost for restoring any other leasehold improvements. In no event shall Landlord be required to spend more than the condemnation proceeds received by Landlord for such repair. The rights contained in this Section 14 shall be Tenant's sole and exclusive remedy in the event of a taking or condemnation. Landlord and Tenant each waives the provisions of Sections 1265.130 and 1265.150 of the California Code of Civil Procedure and the provisions of any successor or other law of like import.

15. **Fire or Other Casualty**. If the Premises or the Building are damaged by fire or other casualty (a "**Casualty**"), Landlord shall use commercially reasonable efforts to deliver to Tenant within sixty (60) days after such Casualty a good faith estimate (the "**Damage Notice**") of the time needed to repair the damage caused by such Casualty. If a material portion of the Premises is damaged by Casualty such that Tenant is prevented from conducting its business in the Premises in a manner reasonably comparable to that conducted immediately before such Casualty and Landlord estimates that the damage caused thereby cannot be repaired within two hundred seventy (270) days after the commencement of repairs (the "**Repair Period**"), then Tenant may terminate this Lease by delivering written notice to Landlord of its election to terminate within thirty (30) days after the Damage Notice has been delivered to Tenant. If a Casualty damages the Premises or a material portion of the Building and (a) Landlord estimates that the damage to the Premises cannot be repaired within the Repair Period; (b) the damage occurs during the last twelve (12) months of the Term; (c) regardless of the extent of damage to the Premises, Landlord makes a good faith determination that restoring the Building would be uneconomical; or (d) Landlord is required to pay any insurance proceeds arising out of the Casualty to a Landlord's Mortgagee, then Landlord may terminate this Lease by giving written notice of its election to terminate within thirty (30) days after the Damage Notice has been delivered to Tenant. If neither party elects to terminate this Lease following a Casualty, then Landlord shall, within a reasonable time after such Casualty, begin to repair the Premises and shall proceed with reasonable diligence to restore the Premises to substantially the same condition as they existed immediately before such Casualty; however, other than building

standard leasehold improvements, Landlord shall not be required to repair or replace any Alterations within the Premises (which shall be promptly and with due diligence repaired and restored by Tenant at Tenant's sole cost and expense) or any furniture, equipment, trade fixtures or personal property of Tenant or others in the Premises or the Building, and Landlord's obligation to repair or restore the Premises shall be limited to the extent of the insurance proceeds actually received by Landlord for the Casualty in question. If the Premises are damaged by Casualty, Rent for the portion of the Premises rendered untenantable by the damage shall be abated on a reasonable basis from the date of damage until the completion of Landlord's repairs (or until the date of termination of this Lease by Landlord or Tenant as provided above, as the case may be), unless a Tenant Party caused such damage, in which case, Tenant shall continue to pay Rent without abatement. The rights contained in this Section 15 shall be Tenant's sole and exclusive remedy in the event of a Casualty. Tenant hereby waives the provisions of Sections 1932(2) and 1933(4) of the California Civil Code and the provisions of any successor or other law of like import.

16. **Personal Property Taxes**. Tenant shall be liable for all taxes levied or assessed against personal property, furniture or fixtures placed by Tenant in the Premises. If any taxes for which Tenant is liable are levied or assessed against Landlord or Landlord's property and Landlord elects to pay the same, or if the assessed value of Landlord's property is increased by inclusion of such personal property, furniture or fixtures and Landlord elects to pay the taxes based on such increase, then Tenant shall pay to Landlord, within thirty (30) days following written request therefor, the part of such taxes for which Tenant is primarily liable hereunder.

17. **Events of Default**. Each of the following occurrences shall be an "**Event of Default**":

(a) **Payment Default**. Tenant's failure to pay Rent within three (3) days after Tenant's receipt of Landlord's written notice that the same is due; provided, however, Landlord shall not be obligated to provide written notice of failure to timely pay Rent more than once in any calendar year, and each subsequent failure to timely pay Rent shall be an Event of Default if Rent is not received within three (3) days after the same is due; provided further, such notice shall be in lieu of, and not in addition to, any notice required under Section 1161 et seq. of the California Code of Civil Procedure;

(b) **Abandonment**. Tenant abandons the Premises, abandonment being defined as Tenant's vacation of persons and effects from all or substantially all of the Premises for a period of fourteen (14) or more consecutive days while in default in the payment of Rent;

(c) **Insurance**. Tenant fails to procure, maintain or deliver to Landlord evidence of the insurance policies and coverages as required under Section 8(b)(iii) and Section 11(a) and such failure continues for more than five (5) days past written notice to Tenant;

(d) **Estoppel/Financial Statement/Commencement Date Memorandum**. Tenant fails to provide: (i) any estoppel certificate after Landlord's written request therefor pursuant to Section 25(d); (ii) any financial statement after Landlord's written request therefor pursuant to Section 25(e); or (iii) the Commencement Date Memorandum in the form of Exhibit E as required by Section 3, and in each case such failure shall continue for five (5) calendar days after Landlord's second (2nd) written notice thereof to Tenant;

(e) **Mechanic's Liens**. Tenant fails to pay and release of record, or diligently contest and bond around, any mechanic's lien filed against the Premises or the Project for any work performed, materials furnished, or obligation incurred by or at the request of Tenant, within the time and in the manner required by Section 8(c);

(f) **Parking Violations**. Tenant fails to cure (or fails to cause to cure) a violation of the terms and conditions relating to parking within three (3) days after Landlord's written notice thereof to Tenant;

(g) **Other Defaults**. Tenant's failure to perform, comply with, or observe any other agreement or obligation of Tenant under this Lease and the continuance of such failure for a period of thirty (30) days or more after Landlord has delivered to Tenant written notice thereof, which notice shall be in lieu of, and not in addition to, any notice required under Section 1161 et seq. of the California Code of Civil Procedure; provided, however, if such default is of the type which cannot reasonably be cured within thirty (30) days, then Tenant shall have such longer time as is reasonably necessary provided Tenant commences to cure within thirty (30) days after receipt of written notice from Landlord and diligently prosecutes such cure to completion within ninety (90) days of such notice;

(h) **Insolvency**. The filing of a petition by or against Tenant or any guarantor hereunder: (1) in any bankruptcy or other insolvency proceeding; (2) seeking any relief under any state or federal debtor relief law; (3) for the appointment of a liquidator or receiver for all or substantially all of Tenant's property or for Tenant's interest in this Lease; or (4) for the reorganization or modification of Tenant's capital structure; however, if such a petition is filed against Tenant or any such guarantor, then such filing shall not be an Event of Default unless Tenant (or such guarantor) fails to have the proceedings initiated by such petition dismissed within sixty (60) days after the filing thereof; and

(i) **Failure to Obtain Landlord's Consent**. Tenant's failure to obtain Landlord's prior written consent for any matter as required under this Lease, including, without limitation, any Alteration or Transfer of this Lease, shall be deemed, without the need for any notice from Landlord, an immediate Event of Default.

18. **Remedies**. Upon any Event of Default, Landlord may, in addition to all other rights and remedies afforded Landlord hereunder or by law or equity, take any one or more of the following actions:

(a) **Termination of Lease**. Terminate this Lease by giving Tenant written notice thereof, in which event Tenant shall immediately surrender the Premises to Landlord and Landlord may recover from Tenant: (i) the worth at the time of award of any unpaid Rent which had been earned at the time of such termination; plus (ii) the worth at the time of award of the amount by which the unpaid Rent which would have been earned after termination until the time of award exceeds the amount of such Rent loss Tenant proves reasonably could have been avoided; plus (iii) the worth at the time of award of the amount by which the unpaid Rent for the balance of the Term after the time of award exceeds the amount of such Rent loss that Tenant proves reasonably could be avoided; plus (iv) any other amount necessary to compensate Landlord for all detriment proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course would be likely to result therefrom; plus (v) at Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by applicable California law. As used in clauses (i) and (ii) above, the "worth at the time of award" is computed by allowing interest at the Default Rate. As used in clause (iii) above, the "worth at the time of award" is computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus one percent (1%).

Forbearance by Landlord to enforce one or more of the remedies herein provided upon an Event of Default shall not be deemed or construed to constitute a waiver of such default. Tenant hereby waives for Tenant and for all those claiming under Tenant all rights now or hereafter existing to redeem by order or judgment of any court or by any legal process or writ, Tenant's right of occupancy of the Premises after any termination of this Lease. If Landlord elects to proceed under this Section 18(a), Landlord may remove all of Tenant's property from the Premises (which shall be deemed abandoned by Tenant) and store the same in a public warehouse or elsewhere at the cost of, and for the account of, Tenant, without becoming liable for any loss or damage which may be occasioned thereby. If and to the extent required by applicable Law, Landlord shall use commercially reasonable efforts to relet the Premises on such terms as Landlord in its sole discretion may determine (including a term different from the Term, rental concessions, and alterations to, and improvement of, the Premises); however, Landlord shall not be obligated to expend funds in connection with reletting the Premises, nor to relet the Premises before leasing other portions of the Building, and Landlord shall not be obligated to accept any prospective tenant proposed by Tenant unless such proposed tenant meets all of Landlord's leasing criteria. Tenant shall not be entitled to the excess of any consideration obtained by reletting over the Rent due hereunder.

(b) **Continue Lease in Effect**. In addition to all other rights and remedies provided Landlord in this Lease and by Law, Landlord shall have the remedy described in California Civil Code Section 1951.4 (Landlord may continue the Lease in effect after Tenant's breach and abandonment and recover Rents as they become due if Tenant has the right to sublet or assign the Lease, subject to reasonable limitations).

(c) **Perform Acts on Behalf of Tenant**. Perform any act Tenant is obligated to perform under the terms of this Lease (and enter upon the Premises in connection therewith if necessary) in Tenant's name and on Tenant's behalf, without being liable for any claim for damages therefor, and Tenant shall reimburse Landlord on demand for any expenses which Landlord may incur in thus effecting compliance with Tenant's obligations under this Lease (including, but not limited to, collection costs and legal expenses), plus interest thereon at the Default Rate.

(d) **Cumulative Remedies**. Any and all remedies set forth in this Lease: (1) shall be in addition to any and all other remedies Landlord may have at law or in equity; (2) shall be cumulative; and (3) may be pursued successively or concurrently as Landlord may elect. The exercise of any remedy by Landlord shall not be deemed an election of remedies or preclude Landlord from exercising any other remedies in the future.

(e) **No Waiver**. Landlord's acceptance of Rent following an Event of Default shall not waive Landlord's rights regarding such Event of Default. No waiver by Landlord of any violation or breach of any of the terms contained herein shall waive Landlord's rights regarding any future violation of such term. Landlord's acceptance of any partial payment of Rent shall not waive Landlord's rights with regard to the remaining portion of the Rent that is due, regardless of any endorsement or other statement on any instrument delivered in payment of Rent or any writing delivered in connection therewith; accordingly, Landlord's acceptance of a partial payment of Rent shall not constitute an accord and satisfaction of the full amount of the Rent that is due.

(f) **Payment by Tenant**. Upon any Event of Default, Tenant shall pay to Landlord all costs incurred by Landlord (including court costs and reasonable attorneys' fees and expenses incurred) in: (1) obtaining possession of the Premises; (2) removing and storing Tenant's or any other occupant's property; (3) repairing, restoring, altering or otherwise putting

the Premises into condition acceptable for leasing to prospective tenants; (4) if Tenant is dispossessed of the Premises and this Lease is not terminated, reletting all or any part of the Premises (including brokerage commissions, cost of tenant finish work, and other costs incidental to such reletting); (5) performing Tenant's obligations which Tenant failed to perform; and (6) enforcing, or advising Landlord of, its rights, remedies and recourses arising out of the Event of Default.

(g) **No Designation**. To the extent allowed by Law, if Tenant is in arrears in payment of Rent, Tenant waives its right, if any, to designate the items to which any payments made by Tenant are to be credited, and Landlord may apply any payments made by Tenant to such items as Landlord sees fit, irrespective of any designation or request by Tenant as to the items to which any such payments shall be credited.

(h) **No Counterclaims**. To the extent allowed by Law, Tenant shall not interpose any counterclaim (other than a compulsory counterclaim) in any summary proceeding commenced by Landlord to recover possession of the Premises and shall not seek to consolidate such proceeding with any action which may have been or will be brought by Tenant or any other person or entity.

(i) **Attorneys' Fees**. If either Landlord or Tenant brings an action to enforce the terms hereof or declare rights hereunder, the prevailing party in any such action, or appeal thereon, shall be entitled to its reasonable attorneys' fees and court costs to be paid by the losing party as fixed by the court in the same or separate suit, and whether or not such action is pursued to decision or judgment. Landlord shall be entitled to reasonable attorneys' fees and costs incurred in the preparation and service of notices of default and consultations in connection therewith, whether or not a legal action is subsequently commenced in connection with such default.

(j) **Waiver of Trial by Jury**. Landlord and Tenant each knowingly, voluntarily and intentionally waive the right to a trial by jury with respect to any litigation arising out of this Lease.

19. **Landlord Defaults; Landlord's Liability**. Landlord shall not be in default under this Lease unless Landlord has failed to begin and pursue with reasonable diligence the cure of any failure of Landlord to meet its obligations under this Lease within thirty (30) days of the receipt by Landlord of written notice from Tenant specifying Landlord's alleged failure to perform (and an additional reasonable time after such receipt if (i) such failure cannot be cured within such thirty (30)-day period, and (ii) Landlord commences curing such failure within such thirty (30)-day period and thereafter diligently pursues the curing of such failure). In no event shall Tenant have the right to terminate or rescind this Lease as a result of Landlord's default. Tenant waives such remedies of termination or rescission and agrees that Tenant's remedies for default under this Lease and for breach of any promise or inducement are limited to a suit for damages and/or injunction. In addition, Tenant shall, prior to the exercise of any such remedies, provide each Landlord's Mortgagee (in each instance, only as to those entities of which Tenant has written notice of their interest) with written notice and reasonable time to cure any default by Landlord. The liability of Landlord (and its partners, shareholders or members) to Tenant (or any person or entity claiming by, through or under Tenant) for any default by Landlord under the terms of this Lease or any matter relating to or arising out of the occupancy or use of the Premises and/or other areas of the Project shall be limited to Tenant's actual direct, but not consequential (or other speculative) damages therefor and shall be recoverable only from the interest of Landlord in the Project, and Landlord and its partners, shareholders or members shall not be personally liable for any deficiency.

20. **Holding Over**. If Tenant fails to vacate the Premises at the end of the Term, then Tenant shall be a tenant at sufferance and, in addition to all other damages and remedies to which Landlord may be entitled for such holding over: (a) Tenant shall pay, in addition to the other Rent, Base Rent equal to (i) one hundred fifty percent (150%) of the Base Rent payable during the last month of the Term for the first thirty (30) days of holdover, and (ii) two hundred percent (200%) of the Base Rent payable during the last month of the Term for any holdover period thereafter; and (b) Tenant shall otherwise continue to be subject to all of Tenant's obligations under this Lease. The provisions of this Section 20 shall not be deemed to limit or constitute a waiver of any other rights or remedies of Landlord provided herein or at Law. If Tenant fails to surrender the Premises upon the termination or expiration of this Lease, in addition to any other liabilities to Landlord accruing therefrom, Tenant shall protect, defend, indemnify and hold Landlord harmless from all loss, costs (including reasonable attorneys' fees) and liability resulting from such failure, including any claims made by any succeeding tenant founded upon such failure to surrender, and any lost profits to Landlord resulting therefrom. Notwithstanding the foregoing, if Tenant holds over with Landlord's express written consent, then Tenant shall be a month-to-month tenant and Tenant shall pay, in addition to the other Rent, Base Rent equal to one hundred twenty five percent (125%) of the Base Rent payable during the last month of the Term.

21. **Surrender of Premises**. No act by Landlord shall be deemed an acceptance of a surrender of the Premises, and no agreement to accept a surrender of the Premises shall be valid unless it is in writing and signed by Landlord. At the expiration or earlier termination of this Lease, Tenant shall: (i) deliver the Premises to Landlord with all improvements located therein in good repair and condition, broom-clean, free of Hazardous Materials placed on the Premises by Tenant or a Tenant Party during the Term, reasonable wear and tear (and condemnation and Casualty damage, as to which Section 14 and Section 15 shall control) excepted; (ii) remove any Alterations installed in the Premises in accordance with the provisions of Section 8(a) above; (iii) remove all unattached trade fixtures, furniture and personal property placed in the Premises by Tenant; and (iv) deliver to Landlord all keys (including electronic card keys) to the Premises and the Building. Tenant, at Tenant's sole expense, shall remove all wiring and cabling installed by or on behalf of Tenant to the main point of entry. Tenant shall repair all damage caused by such removal. All items not so removed shall, at Landlord's option, be deemed to have been abandoned by Tenant and may be appropriated, sold, stored, destroyed, or otherwise disposed of by Landlord at Tenant's cost without notice to Tenant and without any obligation to account for such items. The provisions of this Section 21 shall survive the expiration or earlier termination of the Lease.

22. **Certain Rights Reserved by Landlord**. Landlord shall have the following rights: (i) upon at least 24 hours' prior written notice (email notice being acceptable), to perform maintenance and repairs, and to make inspections, alterations, additions, changes or improvements, whether structural or otherwise, in and about the Project, or any part thereof; to enter upon the Premises (after giving Tenant reasonable notice thereof, which may be oral notice, except in cases of real or apparent emergency, in which case no notice shall be required) for any of the foregoing purposes and, during the performance of any such work therein, to temporarily close doors, lobbies, public space and corridors in the Building; (iii) upon at least 24 hours' prior written notice (email notice being acceptable), to interrupt or temporarily suspend Building services and facilities as reasonably necessary; (iv) to change the arrangement and location of entrances or passageways, doors, and doorways, corridors, elevators, stairs, restrooms or other public parts of the Building; (v) to take such reasonable access control measures as Landlord

deems advisable; provided, however, that any such access control measures are for Landlord's own protection, and Tenant acknowledges that Landlord is not a guarantor of the security or safety of any Tenant Party or of Tenant's personal property, and that all such security matters are the sole responsibility of Tenant; (vi) to require the evacuation of the Building for cause, suspected cause, or for drill purposes; (vii) to temporarily deny access to the Building and to close the Building after Normal Business Hours and on Saturdays, Sundays and Holidays, subject, however, to Tenant's right to enter when the Building is closed after Normal Business Hours pursuant to such reasonable rules and regulations as Landlord may prescribe from time to time; (viii) to enter the Premises at all reasonable hours to perform Landlord's repair and maintenance obligations under this Lease or to perform environmental testing; (ix) upon at least 24 hours' prior written notice (email notice being acceptable), to enter the Premises at all reasonable hours to show the Premises to prospective purchasers or lenders; (x) at any time during the last six (6) months of the Term or at any time following the occurrence of an Event of Default, to enter the Premises at all reasonable hours to show the Premises to prospective tenants; and (xi) to change the name and/or street address of the Building. In conducting the foregoing activities, Landlord shall use commercially reasonable efforts to minimize interference with Tenant's business operations and access to the Premises and parking areas. With respect to all of the foregoing, Landlord shall retain a key for all of the doors for the Premises, excluding Tenant's vaults, safes and files. Landlord shall have the right to use any and all means to open the doors to the Premises in an emergency in order to obtain entry thereto without liability to Tenant therefor. Any entry to the Premises by Landlord by any of the foregoing means, or otherwise, in conformance with this Section 22, shall not be construed or deemed to be a forcible or unlawful entry into or a detainer of the Premises, or an eviction, partial eviction or constructive eviction of Tenant from the Premises or any portion thereof, and shall not relieve Tenant of its obligations hereunder.

23. **Substitution of Space**. Landlord may, at Landlord's expense, upon not less than ninety (90) days' notice to Tenant, relocate Tenant within the Building to space which is comparable in size, condition, improvements, layout and access to the Premises. If Landlord relocates Tenant, Landlord shall reimburse Tenant for Tenant's reasonable out of pocket expenses for moving Tenant's furniture, equipment, and supplies from the Premises to the relocation space and for reprinting Tenant's stationery of the same quality and quantity as Tenant's stationery supply on hand immediately before Landlord's notice to Tenant of the exercise of this relocation right. Upon such relocation, the relocation space shall be deemed to be the Premises and the terms of the Lease shall remain in full force and shall apply to the relocation space, it being agreed that if the size of the new premises is larger than the size of the original Premises, Tenant's Base Rent shall not be adjusted; however, if the size of the new premises is smaller than the size of the original Premises, Tenant's Base Rent shall be decreased. No amendment or other instrument shall be necessary to effectuate the relocation contemplated by this Section; however, if requested by Landlord, Tenant shall execute an appropriate amendment document within ten (10) days after Landlord's written request therefor. If Tenant fails to execute such relocation amendment within such time period, or if Tenant fails to relocate within the time period stated in Landlord's relocation notice to Tenant, then Landlord may terminate this Lease by notifying Tenant in writing thereof at least thirty (30) days prior to the termination date contained in Landlord's termination notice. Time is of the essence with respect to Tenant's obligations under this Section.

24. **Hazardous Materials**.

(a) **Compliance with Laws**. During the Term of this Lease, Tenant shall comply with all Environmental Laws (as defined in Section 24(i) below) applicable to the operation or use of the Premises, will cause all other persons occupying or using the Premises to comply with all such Environmental Laws, and will immediately pay or cause to be paid all costs and expenses incurred by reason of such compliance.

(b) **No Generation**. Tenant shall not generate, use, treat, store, handle, release or dispose of, or permit the generation, use, treatment, storage, handling, release or disposal of Hazardous Materials (as defined in Section 24(i) hereof) on the Premises, or the Project, or transport or permit the transportation of Hazardous Materials to or from the Premises or the Project except for limited quantities of household cleaning products and office supplies used or stored at the Premises and required in connection with the routine operation and maintenance of the Premises, and used and stored in compliance with all applicable Environmental Laws.

(c) **Environmental Assessment**. At any time and from time to time during the Term of this Lease, Landlord may perform an environmental site assessment report concerning the Premises, prepared by an environmental consulting firm chosen by Landlord, indicating the presence or absence of Hazardous Materials caused or permitted by Tenant and the potential cost of any compliance, removal or remedial action in connection with any such Hazardous Materials on the Premises. Subject to Section 22 above, Tenant shall grant and hereby grants to Landlord and its agents access to the Premises and specifically grants Landlord an irrevocable non-exclusive license to undertake such an assessment. If such assessment report indicates the presence of Hazardous Materials caused or permitted by Tenant or any Tenant Party, then such report shall be at Tenant's sole cost and expense, and the cost of such assessment shall be immediately due and payable within thirty (30) days of receipt of an invoice therefor.

(d) **Environmental Claims**. Tenant will promptly advise Landlord in writing upon becoming aware of any of the following: (1) any pending or threatened Environmental Claim (as defined in Section 24(i) below) against Tenant relating to the Premises or the Project; (2) any condition or occurrence on the Premises or the Project that (a) results in noncompliance by Tenant with any applicable Environmental Law, or (b) could reasonably be anticipated to form the basis of an Environmental Claim against Tenant or Landlord or the Premises; (3) any condition or occurrence on the Premises or any property adjoining the Premises that could reasonably be anticipated to cause the Premises to be subject to any restrictions on the ownership, occupancy, use or transferability of the Premises under any Environmental Law; and (4) the actual or anticipated taking of any removal or remedial action by Tenant in response to the actual or alleged presence of any Hazardous Material on the Premises or the Project. All such notices shall describe in reasonable detail the nature of the claim, investigation, condition, occurrence or removal or remedial action and Tenant's response thereto. In addition, Tenant will provide Landlord with copies of all communications regarding the Premises with any governmental agency relating to Environmental Laws, all such communications with any person relating to Environmental Claims, and such detailed reports of any such Environmental Claim as may reasonably be requested by Landlord.

(e) **Intentionally Deleted**.

(f) **Indemnity**. Tenant agrees to indemnify, defend and hold harmless the Indemnitees from and against all obligations (including removal and remedial actions), losses, claims, suits, judgments, liabilities, penalties, damages (including consequential and punitive damages), costs and expenses (including reasonable attorneys' and consultants' fees and expenses) of any kind or nature whatsoever that may at any time be incurred by, imposed on or asserted against such Indemnitees directly or indirectly based on, or arising or resulting from

(a) the actual or alleged presence of Hazardous Materials on the Project which is caused or permitted by Tenant or a Tenant Party and (b) any Environmental Claim relating in any way to Tenant's operation or use of the Premises (the "**Hazardous Materials Indemnified Matters**"). The provisions of this Section 24 shall survive the expiration or sooner termination of this Lease.

(g) **Payment on Indemnified Matters**. To the extent that the undertaking in the preceding paragraph may be unenforceable because it is violative of any law or public policy, Tenant will contribute the maximum portion that it is permitted to pay and satisfy under applicable Law to the payment and satisfaction of all Hazardous Materials Indemnified Matters incurred by the Indemnitees.

(h) **Interest**. All sums paid and costs incurred by Landlord with respect to any Hazardous Materials Indemnified Matter shall bear interest at the Default Rate from the date so paid or incurred until reimbursed by Tenant, and all such sums and costs shall be immediately due and payable on demand.

(i) **Definitions**. (a) "**Hazardous Materials**" means: (i) petroleum or petroleum products, natural or synthetic gas, asbestos in any form that is or could become friable, urea formaldehyde foam insulation, and radon gas; (ii) any substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "extremely hazardous wastes," "restricted hazardous wastes," "toxic substances," "toxic pollutants," "contaminants" or "pollutants," or words of similar import, under any applicable Environmental Law; and (iii) any other substance exposure which is regulated by any governmental authority; (b) "**Environmental Law**" means any federal, state or local statute, law, rule, regulation, ordinance, code, policy or rule of common law now or hereafter in effect and in each case as amended, and any judicial or administrative interpretation thereof, including any judicial or administrative order, consent decree or judgment, relating to the environment, health, safety or Hazardous Materials, including without limitation, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9601 et seq.; the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 et seq.; the Hazardous Materials Transportation Act, 49 U.S.C. §§ 1801 et seq.; the Clean Water Act, 33 U.S.C. §§ 1251 et seq.; the Toxic Substances Control Act, 15 U.S.C. §§ 2601 et seq.; the Clean Air Act, 42 U.S.C. §§ 7401 et seq.; the Safe Drinking Water Act, 42 U.S.C. §§ 300f et seq.; the Atomic Energy Act, 42 U.S.C. §§ 2011 et seq.; the Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. §§ 136 et seq.; the Occupational Safety and Health Act, 29 U.S.C. §§ 651 et seq.; and (c) "**Environmental Claims**" means any and all administrative, regulatory or judicial actions, suits, demands, demand letters, claims, liens, notices of non-compliance or violation, investigations, proceedings, consent orders or consent agreements relating in any way to any Environmental Law or any Environmental Permit, including without limitation (i) any and all Environmental Claims by governmental or regulatory authorities for enforcement, cleanup, removal, response, remedial or other actions or damages pursuant to any applicable Environmental Law and (ii) any and all Environmental Claims by any third party seeking damages, contribution, indemnification, cost recovery, compensation or injunctive relief resulting from Hazardous Materials or arising from alleged injury or threat of injury to health, safety or the environment.

25. **Miscellaneous**.

(a) **Landlord Transfer**. Landlord may transfer any portion of the Project and any of its rights under this Lease. If Landlord transfers its interest in the Lease, Landlord may assign the Letter of Credit (and any Drawn Amount) to the transferee and, upon such transfer (and the delivery to Tenant of an acknowledgment of the transferee's responsibility for the Letter

of Credit and any Drawn Amount if required by Law), Landlord thereafter shall have no further liability for the return of the Letter of Credit and any Drawn Amount. Furthermore, if Landlord assigns its rights under this Lease, then Landlord shall thereby be released from any further obligations hereunder arising after the date of transfer, provided that the assignee assumes Landlord's obligations hereunder in writing.

(b) **Brokerage**. Neither Landlord nor Tenant has dealt with any broker or agent in connection with the negotiation or execution of this Lease, other than the brokers identified in the Basic Lease Information (the "**Brokers**"). Landlord shall pay commissions to such Brokers pursuant to a separate written agreement. Each of Landlord and Tenant shall indemnify, defend and hold the other harmless from and against all costs, expenses, attorneys' fees, liens and other liability for commissions or other compensation claimed by any other broker or agent claiming the same by, through or under the indemnifying party. The foregoing indemnity shall survive the expiration or earlier termination of the Lease.

(c) **Force Majeure**. Other than for Tenant's obligations under this Lease that can be performed by the payment of money (e.g., payment of Rent and maintenance of insurance), whenever a period of time is herein prescribed for action to be taken by either party hereto, such party shall not be liable or responsible for, and there shall be excluded from the computation of any such period of time, any delays due to strikes, riots, acts of God, shortages of labor or materials, war, acts of terrorism, governmental laws, regulations, or restrictions, or any other causes of any kind whatsoever which are beyond the reasonable control of such party.

(d) **Estoppel Certificates**. From time to time, Tenant shall furnish to any party designated by Landlord, within ten (10) days after Landlord has made a written request therefor, a commercially reasonable estoppel certificate signed by Tenant confirming and containing such factual certifications and representations as to this Lease as Landlord may reasonably request. Unless otherwise required by Landlord's Mortgagee or a prospective purchaser or mortgagee of the Project, the initial form of estoppel certificate to be signed by Tenant shall be in the form attached hereto as Exhibit F. Tenant's failure to execute and deliver such certificate within ten (10) days of Landlord's request shall be conclusive upon Tenant that this Lease is in full force and effect and has not been modified except as may be represented in the certificate.

(e) **Financial Statements**. Within fifteen (15) days after Landlord's written request, Tenant will furnish Tenant's most recent audited financial statements (including any notes to them) to Landlord, or, if no such audited statements have been prepared, such other financial statements (and notes to them) as may have been prepared by an independent certified public accountant or, failing those, Tenant's internally prepared financial statements. If Tenant is a publicly traded corporation, Tenant may satisfy its obligations hereunder by providing to Landlord Tenant's most recent annual and quarterly reports. Landlord will not disclose any aspect of Tenant's financial statements that Tenant designates to Landlord as confidential except: (1) to Landlord's Mortgagee or prospective mortgagees or purchasers of the Building; (2) to Landlord's advisors and consultants; (3) in litigation between Landlord and Tenant; and (4) if required by court order. Tenant shall not be required to deliver the financial statements required under this Section 25(e) more than once in any twelve (12)-month period unless requested by Landlord's Mortgagee or a prospective buyer or lender of the Building or an Event of Default occurs.

(f) **Notices**. All notices and other communications given pursuant to this Lease shall be in writing, shall be addressed to the parties hereto at the respective addresses specified in the Basic Lease Information, and shall be: (i) hand delivered; or (ii) sent by a nationally recognized overnight courier service for next Business Day delivery. All notices shall be effective upon the earlier to occur of actual receipt, one (1) Business Day following deposit with a nationally recognized overnight courier service for next Business Day delivery. The parties hereto may change their addresses by giving notice thereof to the other in conformity with this provision.

(g) **Severability**. If any clause or provision of this Lease is illegal, invalid or unenforceable under present or future laws, then the remainder of this Lease shall not be affected thereby and in lieu of such clause or provision, there shall be added as a part of this Lease a clause or provision as similar in terms to such illegal, invalid or unenforceable clause or provision as may be possible and be legal, valid and enforceable.

(h) **Amendments; Binding Effect**. This Lease may not be amended except by instrument in writing signed by Landlord and Tenant. No provision of this Lease shall be deemed to have been waived by Landlord unless such waiver is in writing signed by Landlord, and no custom or practice which may evolve between the parties in the administration of the terms hereof shall waive or diminish the right of Landlord to insist upon the performance by Tenant in strict accordance with the terms hereof. The terms and conditions contained in this Lease shall inure to the benefit of and be binding upon the parties hereto, and their respective successors and assigns.

(i) **Quiet Enjoyment**. Provided Tenant has performed all of its obligations hereunder, Tenant shall peaceably and quietly hold and enjoy the Premises for the Term, without hindrance from Landlord or any party claiming by, through or under Landlord, subject to the terms and conditions of this Lease.

(j) **Governing Law**. This Lease shall be governed by and construed in accordance with the laws of the State of California. Venue for all legal proceedings concerning this Lease shall be with the state and federal courts located in the county in which the Project is located.

(k) **No Recording**. Tenant shall not record this Lease or any memorandum of this Lease.

(l) **Time of Essence**. Time is of the essence with respect to each provision of this Lease.

(m) **Joint and Several Liability**. If Tenant is comprised of more than one (1) party, each such party shall be jointly and severally liable for Tenant's obligations under this Lease. All unperformed obligations of Tenant hereunder not fully performed at the end of the Term shall survive the end of the Term, including payment obligations with respect to Rent and all obligations concerning the condition and repair of the Premises.

(n) **Landlord's Fees**. Whenever Tenant requests Landlord to take any action not required of it hereunder or give any consent required or permitted under this Lease, Tenant will reimburse Landlord for Landlord's reasonable, out-of-pocket costs payable to third parties and incurred by Landlord in reviewing the proposed action or consent, including reasonable attorneys', engineers' or architects' fees, within thirty (30) days after Landlord's delivery to Tenant of a statement of such costs. Tenant will be obligated to make such reimbursement without regard to whether Landlord consents to any such proposed action.

(o) **Confidentiality**. Tenant acknowledges that the terms and conditions of this Lease are to remain confidential for Landlord's benefit, and may not be disclosed by Tenant to anyone, by any manner or means, directly or indirectly, without Landlord's prior written consent, except (i) to Tenant's financial and legal advisors, (ii) to Tenant's investors and lenders or potential investors and lenders, (iii) to a transferee or potential transferee in connection with a Transfer, (iv) as required by applicable Law, (v) in connection with litigation between Landlord and Tenant, and (vi) if Tenant is a publicly-traded entity, in connection with public filings required by Law. The consent by Landlord to any disclosures shall not be deemed to be a waiver on the part of Landlord of any prohibition against any future disclosure.

(p) **Authority**. Landlord and Tenant (if a corporation, partnership or other business entity) hereby represents and warrants to the other party that it is a duly formed and existing entity qualified to do business in the State of California, that Tenant has full right and authority to execute and deliver this Lease, and that each person signing on its behalf is authorized to do so.

(q) **Renovation of Protect**. Tenant acknowledges that Landlord has the right to renovate or remodel the Project or any portion thereof, and in such event portions of the Project may from time to time be under construction following Tenant's occupancy of the Premises; Tenant acknowledges that any such construction may result in levels of noise, dust and obstruction of access which are in excess of that present in a fully-constructed project. In connection with such construction, Landlord may, among other things, erect scaffolding or other necessary structures at the Project. Landlord shall use commercially reasonable efforts to minimize interference with or disruption to the operation of Tenant's business in the Premises during the performance of the any such work; provided, however, that Landlord shall be permitted to perform the work during normal business hours and shall not be required to pay for overtime labor nor shall Tenant be entitled to any abatement of Rent in connection with the performance of any such work. Tenant acknowledges that, notwithstanding Landlord's efforts to minimize interference with the operation of Tenant's business in the Premises during the performance of such work, the work may nonetheless interfere with or disrupt the conduct of Tenant's business at the Premises. Tenant agrees not to assert (and hereby waives) any and all claims of constructive eviction, or for damage to or interference with Tenant's business, or for inconvenience or annoyance which may arise in connection with or as a result of such work.

(r) **OSHA Regulations**. Tenant acknowledges that it has been notified of the presence or potential presence of asbestos-containing materials ("**ACM**") and materials designated by the Occupational Safety and Health Administration ("**OSHA**") as presumed asbestos-containing materials ("**PACM**") located in the Premises, the Building or the Project. The following materials must, in accordance with OSHA regulations, be treated as PACM: any thermal system insulation and surfacing material that is sprayed on, troweled on, or applied in some other manner, as well as any resilient flooring material installed in 1980 or earlier. Upon written request by Tenant, Landlord shall provide Tenant with copies of any information pertaining to ACM or PACM in Landlord's files.

(s) **Disclaimers**. Landlord and Tenant expressly disclaim any implied warranty that the Premises are suitable for Tenant's intended commercial purpose, and Tenant's obligation to pay Rent hereunder is not dependent upon the condition of the Premises or the performance by Landlord of its obligations hereunder, and, except as otherwise expressly provided herein, Tenant shall continue to pay the Rent, without abatement, demand, setoff or deduction, notwithstanding any breach by Landlord of its duties or obligations hereunder, whether express or implied. Furthermore, Tenant does not rely on, nor does Landlord make any representation regarding any specific tenant or number of tenants occupying space in the Project at any time.

(t) **Entire Agreement**. This Lease constitutes the entire agreement between Landlord and Tenant regarding the subject matter hereof and supersedes all oral statements and prior writings relating thereto. Except for those set forth in this Lease, no representations, warranties or agreements have been made by Landlord or Tenant to the other with respect to this Lease or the obligations of Landlord or Tenant in connection therewith. The normal rule of construction that any ambiguities be resolved against the drafting party shall not apply to the interpretation of this Lease or any exhibits or amendments hereto.

(u) **No Offer**. The submission of this Lease to Tenant shall not be construed as an offer, and Tenant shall not have any rights under this Lease unless Landlord executes a copy of this Lease and delivers it to Tenant.

(v) **Civil Code Section 1938 Advisory**. Landlord and Tenant acknowledge and agree that the Premises have not been inspected by a Certified Access Specialist ("**CASp**") pursuant to Section 1938 of the Civil Code ("**Code**"). The parties further agree, pursuant to subdivision (e) of Section 55.53 of the Code the following:

(i) A CASp can inspect the Premises and determine whether the Premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the Premises, Landlord may not prohibit Tenant from obtaining a CASp inspection of the Premises for the occupancy or potential occupancy of Tenant, if requested by the Tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of the construction-related accessibility standards within the Premises.

(ii) Pursuant to the paragraph above, the parties expressly agree that, if Tenant elects to obtain a CASp inspection of the Premises, Tenant shall be solely responsible for scheduling the inspection and that such inspection shall not unreasonably interfere with the operations of the Premises and/or Building or disturb any other tenant or occupant. Tenant shall be solely responsible for any and all costs to perform the CASp inspection, including any ancillary costs relating thereto. If the results of the inspection determine that modifications or alterations are required to meet all applicable construction-related accessibility standards, Tenant agrees to perform such work, in its sole cost and expense and provided approvals from Landlord are obtained under Section 8 of the Lease, as required. Tenant agrees that all work shall be performed in a first class manner in compliance with all laws and using best efforts to minimize any disruption to the Building and other tenants or occupants, if applicable. Furthermore, Tenant agrees that any report that is generated as a result of an inspection pursuant to this section and all information contained therein, shall remain confidential, except as necessary for Tenant to complete repairs and/or correct violations, as agreed herein.

(w) **Proposition 65**. Tenant acknowledges and agrees that it is exclusively responsible for compliance with California's Safe Drinking Water and Toxic Enforcement Act of 1986 (known as Proposition 65) on the Premises. Tenant specifically agrees that it is responsible to determine whether the Premises require Proposition 65 warning(s), and when warning obligation(s) are triggered, Tenant must provide clear and reasonable Proposition 65 warnings to persons as provided in the Proposition 65 statutes and regulations. Both parties expressly acknowledge that Landlord is not responsible to assess the Premises for compliance with Proposition 65 or review the adequacy of warnings provided by Tenant. To the extent the Premises are leased to Tenant with Proposition 65 warnings already thereon, these warnings are not a representation by Landlord that the Premises are currently compliant with Proposition 65, and Tenant expressly agrees it retains responsibility to maintain, update, and supplement those warnings, as is necessary for compliance.

(x) **Parking**. Tenant shall use no more than the number of parking spaces set forth in the Basic Lease Information, subject to Tenant's compliance with the terms and conditions set forth on the attached Exhibit D and shall be subject to such other agreement between Landlord and Tenant as may hereinafter be established; provided, however, if at any time during the Term, Tenant ceases to pay any amounts owed for one (1) or more of the parking spaces provided to Tenant, then Tenant shall have no further right to use such parking space(s).

(y) **Conference Room**. Landlord currently operates a shared conference facility (the "**Conference Center**") on the ground floor of the Building, which Conference Center is currently available for use by all tenants of the Building, at the current rates set by Landlord from time to time in its sole and absolute discretion, on a first come, first serve basis. So long as Landlord continues to offer the Conference Center for non-exclusive use by tenants of the Building, and provided there is no Event of Default, Tenant shall have a non-exclusive right to use the Conference Center, subject to availability, as determined by Landlord in its sole and absolute discretion. Such right to use the Conference Center shall be subject to all rules and regulations regarding the use of the Conference Center as Landlord may impose from time to time, including, without limitation, restrictions on frequency, hours and length of use, payment of a fee for such and cleaning and trash dispensing requirements. Tenant acknowledges, understands and agrees that Landlord makes no representation or warranty to Tenant that Landlord will continue to provide the Conference Center throughout the Term of this Lease or that the Conference Center will be available for use by Tenant at any particular time or from time to time.

(z) **Fitness Center**. Tenant and its employees, and when duly authorized pursuant to the provisions of this Lease, its subtenants, licensees and concessionaires, shall have the non-exclusive right to use the Fitness Center located in the Building as constituted from time to time, such use to be in common with Landlord, other tenants in the Project and other persons permitted by Landlord to use the same. Tenant hereby agrees and acknowledges that such use is expressly conditioned upon Tenant assuming all risks of using the fitness Center and the equipment therein. Moreover, Tenant acknowledges that in consideration for being permitted to use the Fitness Center, Tenant shall be entirely responsible for all risk and liability associated therewith and agrees to indemnify, defend and hold Landlord and the Indemnitees harmless against any loss, liability or damage resulting from such use of the Fitness Center.

26. **USA Patriot Act and Anti-Terrorism Laws**.

(a) Tenant represents and warrants to, and covenants with, Landlord that neither Tenant nor, to its knowledge, any of its respective constituent owners or affiliates currently are, or shall be at any time during the Term hereof, in violation of any laws relating to terrorism or money laundering (collectively, the "**Anti-Terrorism Laws**"), including without limitation Executive Order No. 13224 on Terrorist Financing, effective September 24, 2001 and relating to Blocking Property and Prohibiting Transactions With Persons Who Commit, Threaten to Commit, or Support Terrorism (the "**Executive Order**") and/or the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (Public Law 107-56) (the "**USA Patriot Act**").

(b) Tenant covenants with Landlord that neither Tenant nor, to its knowledge, any of its respective constituent owners or affiliates is or shall be during the Term hereof a "**Prohibited Person,**" which is defined as follows: (i) a person or entity that is listed in the Annex to, or is otherwise subject to, the provisions of the Executive Order; (ii) a person or entity owned or controlled by, or acting for or on behalf of, any person or entity that is listed in the Annex to, or is otherwise subject to the provisions of, the Executive Order; (iii) a person or entity with whom Landlord is prohibited from dealing with or otherwise engaging in any transaction by any Anti-Terrorism Law, including without limitation the Executive Order and the USA Patriot Act; (iv) a person or entity who commits, threatens or conspires to commit or support "terrorism" as defined in Section 3(d) of the Executive Order; (v) a person or entity that is named as a "specially designated national and blocked person" on the then-most current list published by the U.S. Treasury Department Office of Foreign Assets Control at its official website, http://www.treas.gov/offices/eotffc/ofac/sdn/t11sdn.pdf, or at any replacement website or other replacement official publication of such list; and (vi) a person or entity who is affiliated with a person or entity listed in items (i) through (v) above.

(c) At any time and from time to time during the Term, Tenant shall deliver to Landlord, within ten (10) days after receipt of a written request therefor, a written certification or such other evidence reasonably acceptable to Landlord evidencing and confirming Tenant's compliance with this Section 26.

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This Lease is executed on the respective dates set forth below, but for reference purposes, this Lease shall be dated as of the date first above written. If the execution date is left blank, this Lease shall be deemed executed as of the date first written above.

LANDLORD:

DC STATION OWNER, LLC,
a Delaware limited liability company

By: */s/ Griff King*
Name: Griff King
Title: Vice President

By: */s/ Thomas Wagner*
Name: Thomas Wagner
Title: Vice President

Execution Date: March 2, 2020

TENANT:

SPRUCE BIOSCIENCES, INC.,
a Delaware corporation

By: */s/ Richard King*
Name: Richard King
Title: Chief Executive Officer

By: */s/ M. C. Grey*
Name: M. C. Grey
Title: Chairman

Execution Date: 2/26/2020, 2020

[If Tenant is a corporation, Tenant should have one officer from each of the following categories sign for Tenant: (a) a president, vice president or chairman of the board and (b) a secretary, assistant secretary, chief financial officer or assistant treasurer (unless the Lease is returned accompanied by a corporate resolution identifying a single authorized signatory).]

EXHIBIT A

DIAGRAM OF PREMISES

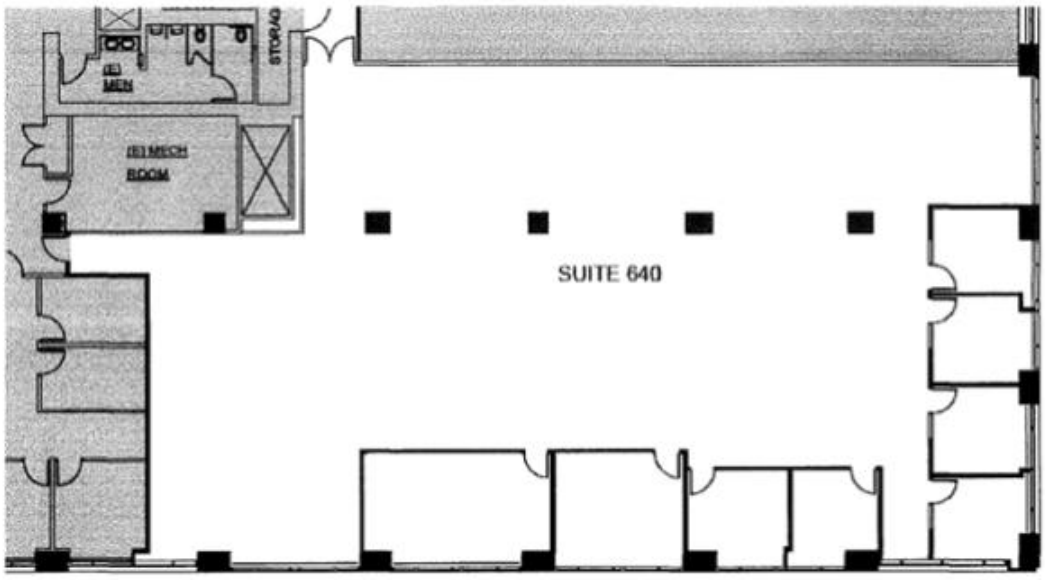

EXHIBIT B

STANDARDS FOR SERVICES AND UTILITIES

The following Standards for Services and Utilities are in effect. Landlord reserves the right to adopt nondiscriminatory modifications and additions hereto. As long as no Event of Default has occurred and is continuing under any of the terms of this Lease, Landlord shall use all reasonable efforts to:

(a) Provide janitorial services to the Premises on Business Days, provided the same are kept reasonably in order by Tenant, and such window washing as may from time to time be reasonably required. Tenant shall pay to Landlord the cost of removal of any of Tenant's refuse and rubbish, to the extent that the same exceeds the refuse and rubbish typical of the use of the Premises as offices.

(b) Replace standard light bulbs and fluorescent tubes, provided that Landlord's standard charge for such bulbs and tubes shall be paid by Tenant.

(c) Provide reasonable lighting to the Building lobby, elevator lobbies, stairwells, hallways and restrooms at all times.

(d) Furnish water to the public areas for drinking and lavatory purposes only.

(e) Provide non-attended automatic elevator facilities during Normal Business Hours, and have one elevator available at all other times.

(f) During Normal Business Hours (and at other times for a reasonable additional charge established by Landlord for the Project from time to time), ventilate the Premises and furnish heat or air conditioning on such days and hours when, in the reasonable judgment of Landlord, it may be required for the comfortable occupancy of the Premises. Tenant agrees to cooperate with Landlord with respect to, and to abide by all reasonable regulations and requirements which Landlord may prescribe for, the proper functioning and protection of the Building HVAC system. Tenant agrees that neither Tenant nor any Tenant Party shall at any time enter mechanical installations or facilities of the Project or adjust, tamper with, touch or otherwise in any manner affect said installations or facilities. If Tenant uses machines or equipment in the Premises or any server room which affect the temperature otherwise maintained by the air conditioning system, Landlord may install supplemental air conditioning units or other supplemental equipment in the Premises or the server room (including supplemental metering devices), and the cost thereof, including the cost of installation, operation, use and maintenance, shall be paid by Tenant to Landlord within thirty (30) days after Landlord has delivered to Tenant an invoice therefor. The cost of maintenance and service calls to adjust and regulate the air conditioning system shall be charged to Tenant if the need for maintenance work results from either Tenant's adjustment of room thermostats or Tenant's failure to comply with its obligations under this section; such work shall be charged at hourly rates equal to then current journeymen's wages for air conditioning mechanics.

(g) Furnish to the Premises, during Normal Business Hours, electric current sufficient for normal office use. Tenant shall not install any electrical equipment requiring special wiring or requiring voltage in excess of 110 volts unless approved in advance by Landlord, which approval shall not be unreasonably withheld. Tenant agrees, should its electrical installation or electrical consumption be in excess of the aforesaid quantity or extend beyond Normal Business

Hours, to reimburse Landlord monthly for the measured consumption at the average cost per kilowatt hour charged to the Building during the period. Under such circumstances, Landlord may install a separate meter for electrical usage at Tenant's cost. If a separate meter is not installed, such excess cost will be established by an estimate agreed upon by Landlord and Tenant, and if the parties fail to agree, as established by an independent licensed engineer. Said estimates shall be reviewed and adjusted quarterly. Tenant agrees not to use any apparatus or device in, upon or about the Premises which may in any way increase the amount of such services usually furnished or supplied to said Premises, and Tenant further agrees not to connect any apparatus or device with wires, conduits or pipes, or other means by which such services are supplied, for the purpose of using additional or unusual amounts of such services without the prior written consent of Landlord. Should Tenant use the same to excess, the refusal on the part of Tenant to pay upon demand of Landlord the amount established by Landlord for such excess charge shall constitute a breach of the obligation to pay Rent under this Lease and shall entitle Landlord to the rights therein granted for such breach. At all times Tenant's use of electric current shall never exceed the capacity of the feeders to the Building or the risers or wiring installation and Tenant shall not install or use or permit the installation or use of any computer larger than personal computers or electronic data processing equipment in the Premises, without the prior written consent of Landlord. Any risers or wiring required to meet Tenant's excess electrical requirements shall, upon Tenant's written request, be installed by Landlord, at Tenant's cost, if, in Landlord's judgment, the same are necessary and shall not cause permanent damage to the Building or the Premises, cause or create a dangerous or hazardous condition, entail excessive or unreasonable alterations, repairs or expenses, or interfere with or disturb other tenants of the Project.

Landlord reserves the right to stop service of the elevator, plumbing, HVAC, electric or any of the other Building's Systems, when necessary, by reason of accident or emergency or for repairs, alterations or improvements, until said repairs, alterations or improvements shall have been completed, and shall further have no responsibility or liability for failure to supply elevator facilities, plumbing, HVAC, electric or any other Building service, when prevented from so doing by strike or accident or by any cause beyond Landlord's reasonable control, or by laws, rules, orders, ordinances, regulations or requirements of any federal, state, county or municipal authority or failure of electricity, gas, oil or other suitable fuel supply or inability by exercise of reasonable diligence to obtain electricity, gas, oil or other suitable fuel. It is expressly understood and agreed that any covenants on Landlord's part to furnish any service pursuant to any of the terms, covenants, conditions, provisions or agreements of this Lease, or to perform any act or thing for the benefit of Tenant, shall not be deemed breached if Landlord is unable to furnish or perform the same by virtue of a strike or labor trouble or any other cause whatsoever beyond Landlord's reasonable control.

Heating, ventilation, air conditioning or electric lighting service throughout the Premises and electrical facilities to provide sufficient power for copy machines, facsimile machines, standard size personal computers and other standard office machines of similar low electrical consumption, but not including electricity required for special lighting in excess of Building standards, and any other item of electrical equipment which consumes electricity in amounts in excess of standard office equipment, as reasonably determined by Landlord ("**Extra Electrical Service**") provided by Landlord to Tenant (i) during hours other than the Building hours of operation specified in the rules and regulations for the Building, which shall provide for Building hours of operation of 8:00 a.m. to 6:00 p.m., Monday through Friday (excluding holidays observed by the federal government), or (ii) on Saturdays, Sundays, or holidays, all said heating, ventilation, and air conditioning or extra electrical service to be furnished solely upon the prior written request of Tenant submitted during business hours to Landlord at least 24 hours in advance of the time such service is needed, or pursuant to such other procedures (which may permit less than 24 hours notice) as may be established from time to time by Landlord for the Building (such after-hour HVAC, shall be billed at Landlord's commercially reasonable standard rates).

If any supplemental HVAC unit (a "**Unit**") exclusively serves the Premises, then (a) Tenant shall pay the costs of all electricity consumed in the Unit's operation, together with the cost of installing a meter to measure such consumption; (b) Tenant, at its expense, shall (i) operate and maintain the Unit in compliance with all applicable laws and such reasonable rules and procedures as Landlord may impose; (ii) keep the Unit in as good working order and condition as existed upon installation (or, if later, when Tenant took possession of the Premises), subject to normal wear and tear; (iii) maintain in effect, with a contractor reasonably approved by Landlord, a contract for the maintenance and repair of the Unit, which contract shall require the contractor, at least once every three (3) months, to inspect the Unit and provide to Tenant a report of any defective condition, together with any recommendations for maintenance, repair or parts replacement; (iv) follow all reasonable recommendations of such contractor; and (v) promptly provide to Landlord a copy of such contract and each report issued thereunder; (c) the Unit shall become Landlord's property upon the expiration or earlier termination of this Lease and without compensation to Tenant; provided, however, that upon Landlord's request prior to the expiration or earlier termination of this Lease, Tenant, at its expense, shall remove the Unit and repair any resulting damage (and if Tenant fails to timely perform such work, Landlord may do so at Tenant's expense); (d) if the Unit exists on the date of mutual execution and delivery of this Lease, Tenant accepts the Unit in its "as is" condition, without representation or warranty as to quality, condition, fitness for use or any other matter; (f) If the Unit connects to the Building's condenser water loop (if any), then Tenant shall pay to Landlord, as Additional Rent, Landlord's standard one-time fee for such connection and Landlord's standard monthly per-ton usage fee; and (g) if any portion of the Unit is located on the roof, then (i) Tenant's access to the roof shall be subject to such reasonable rules and procedures as Landlord may impose; (ii) Tenant shall maintain the affected portion of the roof in a clean and orderly condition and shall not interfere with use of the roof by Landlord or any other tenants or licensees; and (iii) Landlord may relocate the Unit and/or temporarily interrupt its operation, without liability to Tenant, as reasonably necessary to maintain and repair the roof or otherwise operate the Building.

EXHIBIT C

WORK LETTER

1. **Acceptance of Premises**. Except as set forth in this Exhibit, Tenant accepts the Premises in their "**AS IS**" condition on the date that this Lease is entered into.

2. **Space Plan**. On or before the execution of this Lease, Tenant has delivered to Landlord a space plan depicting improvements to be installed in the Premises, which plan is attached hereto as Schedule 1 to this Exhibit (the "**Space Plan**").

3. **Working Drawings**.

(a) **Preparation and Delivery**. Following the date on which this Lease is fully executed by both Landlord and Tenant, Landlord shall cause to be prepared final working drawings of all improvements to be installed in the Premises and deliver the same to Tenant for its review and approval, which approval shall not be unreasonably withheld, delayed or conditioned.

(b) **Approval Process**. Tenant shall notify Landlord whether it approves of the submitted working drawings within four (4) Business Days after Landlord's submission thereof. If Tenant disapproves of such working drawings, then Tenant shall notify Landlord thereof specifying in reasonable detail the reasons for such disapproval, in which case Landlord shall, within five (5) Business Days after such notice, revise such working drawings in accordance with Tenant's objections and submit the revised working drawings to Tenant for its review and approval. Tenant shall notify Landlord in writing whether it approves of the resubmitted working drawings within three (3) Business Days after its receipt thereof. This process shall be repeated until the working drawings have been finally approved by Landlord and Tenant. If Tenant fails to notify Landlord that it disapproves of the initial working drawings within four (4) Business Days (or, in the case of resubmitted working drawings, within three (3) Business Days) after the submission thereof, then Tenant shall be deemed to have approved the working drawings in question. Any delay caused by Tenant's unreasonable withholding of its consent or delay in giving its written approval as to such working drawings shall constitute a Tenant Delay Day (defined below). If the working drawings are not fully approved (or deemed approved) by both Landlord and Tenant by the fifteenth (15th) Business Day after the delivery of the initial draft thereof to Tenant, then each day after such time period that such working drawings are not fully approved (or deemed approved) by both Landlord and Tenant shall constitute a Tenant Delay Day.

(c) **Landlord's Approval; Performance of Work**. After the Working Drawings (as defined below) have been achieved, Landlord shall, at its sole cost except as set forth herein, cause the Work to be performed in substantial accordance with the Working Drawings, in a good, workmanlike manner and in accordance with applicable Laws, using contractors and subcontractors selected by Landlord. Landlord shall be responsible for complying with the accessibility standards established by Daly City, California pursuant to applicable Law to the extent such compliance is required to Substantially Complete the Work. As used herein, "**Working Drawings**" shall mean the final working drawings prepared by Landlord and approved (or deemed approved) by Tenant, as amended from time to time by any approved changes thereto, and "**Work**" shall mean all improvements to be constructed by Landlord in accordance with and as indicated on the Working Drawings. Landlord's approval of the Working Drawings shall not be a representation or warranty of Landlord that such drawings are adequate for any use or comply with any Law, but shall merely be the consent of Landlord thereto. Tenant shall, at Landlord's request, sign the Working Drawings to evidence its review and approval thereof.

4. **Change Orders**. Tenant may initiate changes in the Work. Each such change must receive the prior written approval of Landlord, such approval not to be unreasonably withheld or delayed; however, (a) if such requested change would adversely affect (in the reasonable discretion of Landlord) (1) the Building's Structure or the Building's Systems (including the Building's restrooms or mechanical rooms), (2) the exterior appearance of the Building, or (3) the appearance of the Building's Common Areas or elevator lobby areas, or (b) if any such requested change might delay the Commencement Date, Landlord may withhold its consent in its sole and absolute discretion.

5. **Definitions**. As used herein, a "**Tenant Delay Day**" shall mean each day of delay in the performance of the Work beyond the Estimated Delivery Date that occurs (a) because of Tenant's failure to timely deliver or approve any required documentation such as the Space Plans or Working Drawings in accordance with Section 3(b) of this Exhibit C, (b) because of any change by Tenant to the Space Plans or Working Drawings, (c) because of any specification by Tenant of materials or installations in addition to or other than Landlord's standard finish-out materials, or (d) because of other acts or omissions by Tenant or its agents that actually delays the Work, where such actions or omissions continue for more than one (1) day following written or oral notice from Landlord. As used herein "**Substantial Completion,**" "**Substantially Completed,**" and any derivations thereof mean the Work in the Premises has been performed in substantial accordance with the Working Drawings, as reasonably determined by Landlord (other than any details of construction, mechanical adjustment or other similar matter, the noncompletion of which does not materially interfere with Tenant's use or occupancy of the Premises) and that Tenant has the legal right to occupy the Premises for the Permitted Use. Notwithstanding anything to the contrary contained in the Lease, Tenant shall be liable for all costs incurred by Landlord in connection with any Tenant Delay Day and shall reimburse such costs to Landlord within five (5) Business Days following Landlord's demand. Each day of delay beyond such five (5) Business Day period that Tenant fails to reimburse Landlord shall be deemed a Tenant Delay Day. Without limiting Landlord's rights and remedies, Landlord shall have the right to cease construction without any liability or penalty until Tenant cures any delay by Tenant.

6. **Walk-Through; Punchlist**. When Landlord considers the Work in the Premises to be Substantially Completed, Landlord will notify Tenant and within three (3) Business Days thereafter, Landlord's representative and Tenant's representative shall conduct a walk-through of the Premises and identify any necessary touch-up work, repairs and minor completion items that are necessary for final completion of the Work. Neither Landlord's representative nor Tenant's representative shall unreasonably withhold his or her agreement on punchlist items. Landlord shall use reasonable efforts to cause the contractor performing the Work to complete all punchlist items within thirty (30) days after agreement thereon; however, Landlord shall not be obligated to engage overtime labor in order to complete such items.

7. **Costs**. Landlord shall bear the entire cost of performing the Work depicted on the Space Plan initially submitted to and approved by Landlord, subject to Landlord's Contribution (as defined below). Tenant shall bear any Tenant's Costs (as defined below) and shall pay Landlord an amount equal to fifty percent (50%) of the estimated Tenant's Costs upon Landlord's demand; Tenant shall pay to Landlord the remaining portion of Tenant's Costs upon Substantial Completion of the Work. In consideration for Landlord's management and supervision for services performed in connection with the Work, Tenant shall pay to Landlord a construction management fee equal to three percent (3%) of Tenant's Costs specified in this Section 7.

8. **Construction Cost Allocation**.

(a) **Landlord's Contribution**. Notwithstanding anything to the contrary contained in the Lease or this Work Letter, Landlord's total contribution toward the cost of the Tenant Improvements shall not exceed the cost of performing the improvements set forth in the Space Plan using Building standard materials, methods, quantities and finishes ("**Landlord's Contribution**"). In no event shall Landlord be liable for any cost in excess of Landlord's Contribution, it being agreed by the parties that such excess costs shall be Tenant's responsibility.

(b) **Tenant's Costs**. Tenant shall be responsible for all costs in excess of Landlord's Contribution, caused by any reason, including, without limitation, (i) any change, supplements, substitutions or alternates to the scope of the Tenant Improvements requested by Tenant or required as a result of Tenant's revisions thereto or suggested by Landlord's contractor or architect, (ii) any Tenant Delay Days, or (iii) any non-Building Standard materials, methods, quantities or finishes ("**Tenant's Costs**"). As used herein, "**Building Standard**" shall mean and refer to the materials, methods, quantities and finishes typically used by Landlord in connection with the improvement of tenant spaces in the Building, as determined by Landlord from time to time.

(c) **Payment of Tenant's Costs**. Tenant shall pay all such Tenant's Costs to Landlord within ten (10) Business Days following Landlord's written request and submittal of documentation evidencing the cost thereof. Landlord shall not be required to commence or continue, as the case may be, construction of the Tenant Improvements until receipt of Tenant's payment of Tenant's Costs, and each day of delay resulting therefrom shall be deemed a Tenant Delay Day and, at the election of Landlord, shall be deemed an Event of Default under the Lease. At the option of Landlord, amounts payable by Tenant pursuant to this Section shall be paid directly to the contractor or such other party as Landlord may designate in writing. If Tenant fails to pay Tenant's Costs within such five (5) Business Day period, Tenant shall be deemed to have withdrawn its request for all items which resulted in Tenant's Costs, and Landlord may proceed with construction of the Tenant Improvements using materials and methods and quantities Landlord deems reasonable.

9. **Construction Management**. Landlord or its Affiliate or agent shall supervise the Work, make disbursements required to be made to the contractor, and act as a liaison between the contractor and Tenant and coordinate the relationship between the Work, the Building and the Building's Systems. In consideration for Landlord's construction supervision services, Tenant shall pay to Landlord a construction supervision fee equal to three percent (3%) of Tenant's Costs specified in Section 7.

10. **Construction Representatives**. Landlord's and Tenant's representatives for coordination of construction and approval of change orders will be as follows, provided that either party may change its representative upon written notice to the other:

Landlord's Representative: Construction Manager
c/o Harvest Properties, Inc.
Email: _____

Tenant's Representative: _____
c/o_____
_____
_____
Telephone:_____
Email:_____

11. **Miscellaneous**. To the extent not inconsistent with this Exhibit, Sections 8(a) and 21 of this Lease shall govern the performance of the Work and Landlord's and Tenant's respective rights and obligations regarding the improvements installed pursuant thereto.

SCHEDULE 1

SPACE PLAN

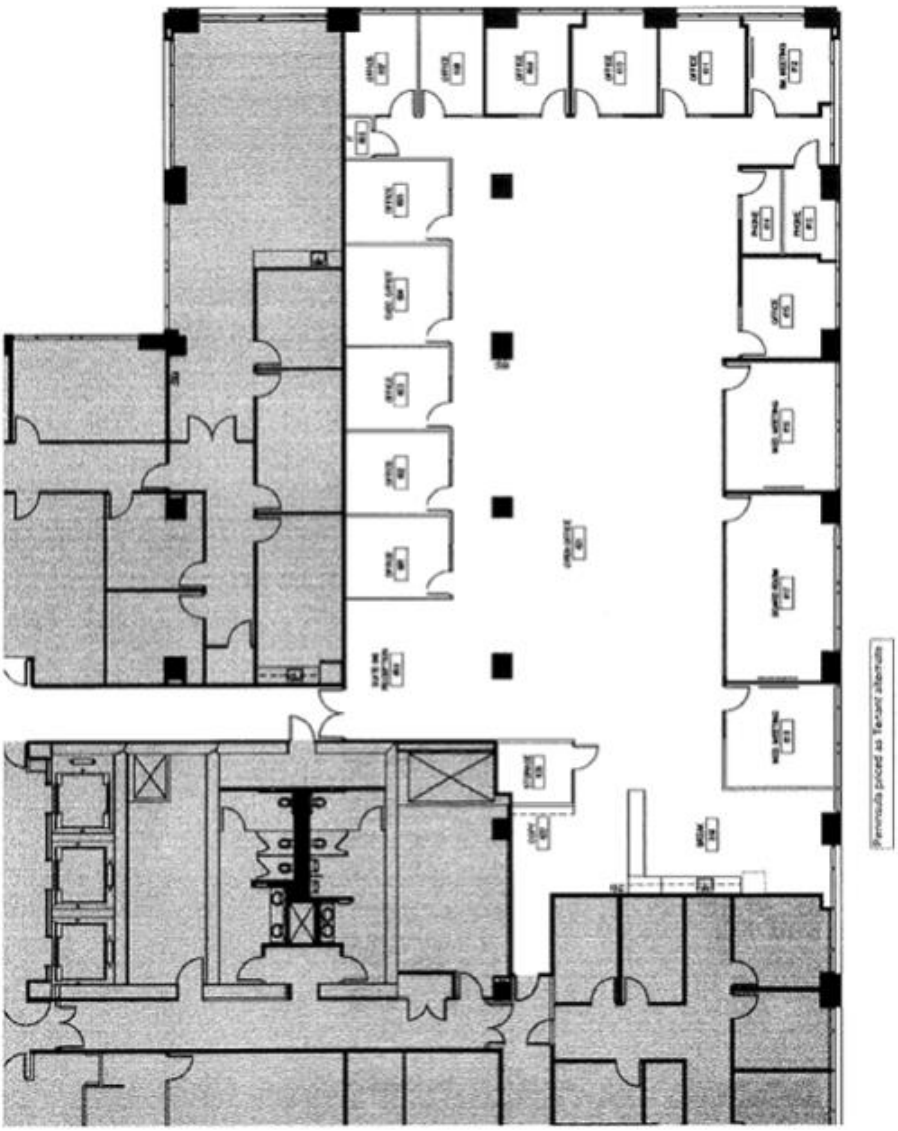

EXHIBIT C-1

CONTRACTOR RULES AND REGULATIONS

Any and all Alterations, improvements or additions performed by Tenant will be performed in accordance with this Exhibit C-1, and any modifications thereto by Landlord, notwithstanding any more permissive local building codes or ordinances. For the avoidance of doubt, Landlord is managing the Work and, therefore, Tenant shall have no responsibility whatsoever for compliance with this Exhibit C-1 with respect to the Work.

1. WORK APPROVAL

The general contractor ("**Contractor**") and all subcontractors must be approved to conduct their trades in the jurisdiction in which the Building is located by any and all governmental entities with such authority. Tenant or Contractor must provide Landlord with names, addresses and phone numbers for all subcontractors prior to commencement of work by the subcontractor. Construction drawings must be approved by Landlord prior to the start of construction. All projects shall be reviewed for potential impact to reduction targets and environmental programs. An agent or representative of Contractor must be present on the site at all times when work is in process.

2. INSURANCE

Prior to commencement of work, Contractor shall provide to Landlord a certificate of insurance in the form of an ACORD certificate with the approved limits of coverage and additional insureds as provided in Sections 23 and 24 of these rules and regulations.

3. PERMITS

Permits and licenses necessary for the onset of all work shall be secured and paid for by Contractor and posted as required by applicable Law. Building hot work permits must be issued for all braising or use of flames or sparks.

4. INSPECTIONS

All inspections which must be performed by testing any or all of the life safety system, e.g., alarms, annunciator, voice activated, strobe lights, etc., must be performed prior to 7:00 a.m. or after 6:00 p.m., and the on-site engineer must be present. At least 48 hours' notice must be provided to the Property Manager and the on-site engineer advising that an inspection has been requested.

5. NON-CONSTRUCTION AREAS

Contractor shall take all necessary precautions to protect all areas outside of the work area and shall repair or replace damaged property without cost to Landlord.

6. EROSION AND SEDIMENT CONTROL

Contractor agrees to provide a management plan prior to any exterior ground work being performed to prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse, preventing sedimentation of storm sewer or receiving streams, and preventing pollution of the air with dust and particulate matter. Contractor shall log building operations and maintenance activity to ensure that the plan has been followed.

7. GREEN BUILDINGS

Contractor agrees to incorporate Sustainability Standards into the preparation of the Plans and Specifications, including, without limitation, those "Energy and Sustainability Construction Guidelines and Requirements" attached hereto as Exhibit C-2, when such compliance will not cause a material increase in Construction Costs.

8. WATER AND ELECTRICITY

Sources of water and electricity will be furnished to Contractor without cost, in reasonable quantities for use in lighting, power tools, drinking water, water for testing, etc. "Reasonable quantities" will be determined on a case-by-case basis, but are generally intended to mean quantities comparable to the water and electrical demand Tenant would use upon taking occupancy. Contractor shall make all connections, furnish any necessary extensions, and remove same upon completion of work.

9. DEMOLITION AND DUSTY WORK

Demolition of an area in excess of 100 square feet must be performed before 7:00 a.m. or after 6:00 p.m. Contractor shall notify the Building engineer's office at least one full Business Day prior to commencement of extremely dusty work (sheet rock cutting, sanding, extensive sweeping, etc.) so arrangements can be made for additional filtering capacity on the affected HVAC equipment. Failure to make such notification will result in Contractor incurring the costs to return the equipment to its proper condition. All lights must be covered during high dust construction due to a plenum return air system.

10. CONSTRUCTION MANAGEMENT PLAN FOR INDOOR AIR QUALITY

Contractor agrees to develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and occupancy phases of the area being built out as follows:

- During construction, meet or exceed the recommended Design Approaches of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guideline for Occupied Buildings Under Construction, 1995, Chapter 3.
- Protect stored on-site or installed absorptive materials from moisture damage.
- If air handlers must be used during construction, use filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 at each return air grill, as determined by ASHRAE 52.2-1999.
- Replace all filtration media immediately prior to occupancy.
- Make every reasonable effort to minimize the off-gassing of volatile organic compounds used in construction materials within the Building. Efforts may include the use of no- and low-VOC products and materials, allowing products to off-gas before being brought into the Building, and flushing out the space with outside air or air purifiers.

11. WATER USE EFFICIENCY

Contractor agrees to comply with the following:

- Maintain maximum fixture water efficiency within the Building to reduce the burden on potable water supply and wastewater systems.
- Keep fire systems, domestic water systems, and landscape irrigation systems as separate systems to be maintained and metered separately. Modifications to the water systems must maintain the integrity of these three systems.
- Submeter process water used directly by tenant and for the sole benefit of tenant.
- Irrigation lines are not to be connected to domestic supply lines.

12. REMOVAL OF WASTE MATERIALS

Any and all existing building materials removed and not reused in the construction shall be disposed of by Contractor as waste or unwanted materials, unless otherwise directed by the Property Manager. Contractor shall comply with all Laws and Landlord's waste and recycling practices. Contractor shall at all times keep areas outside the work area free from waste material, rubbish and debris and shall remove waste materials from the Building on a daily basis.

13. CLEANUP

Upon construction completion, Contractor shall remove all debris and surplus material and thoroughly clean the work area and any common areas impacted by the work.

14. HOUSEKEEPING PRACTICES

Contractor agrees to comply with Landlord's cleaning and maintenance practices.

15. MATERIAL SAFETY DATA SHEETS (MSDS)

Contractor agrees to provide the Property Manager with at least 72 hours' advance notice of all chemicals to be used on site through written notice and delivery of MSDS sheets.

16. WORKING HOURS

Standard construction hours are 6:30 a.m. —5:00 p.m. The Building engineer must be notified at least two full Business Days in advance of any work that may disrupt normal business operations, e.g., drilling or cutting of the concrete floor slab which must take place outside of Normal Business Hours. The Property Manager reserves the right to determine what additional construction work is considered inappropriate for normal business hours. Work performed after standard construction hours requires an on-site engineer, who shall be billed at the then overtime rate, payable by Contractor.

17. WORKER CONDUCT

Contractor and subcontractors are to use care and consideration for others in the Building when using any public areas. No abusive language or actions on the part of the workers will be tolerated. It will be the responsibility of Contractor to enforce this regulation on a day-to-day basis. Contractor and subcontractors shall remain in the designated construction area so as not to unnecessarily interrupt other tenants. No sleeveless shirts are allowed. Long pants and proper work shoes are required. All workers must wear company identification.

18. CONSTRUCTION INSPECTIONS

Contractor is to perform a thorough inspection of all common areas to which it requires access prior to construction to document existing Building conditions. Upon completion of work, if necessary, Contractor shall return these areas to the same condition in which they were originally viewed. Any damage caused by Contractor shall be corrected at its sole cost.

19. SIGNAGE

Contractor or subcontractor signage may not be displayed in areas of the Building visible from the exterior of the Premises.

20. POSTING OF RULES AND REGULATIONS

A copy of these rules and regulations must be posted on the job site in a manner allowing easy access by all workers. It is Contractor's responsibility to instruct all workers, including subcontractors, to familiarize themselves with these rules and regulations.

21. INSURANCE REQUIREMENTS

Contractor will provide and maintain at its own expense the following minimum insurance:

(a) Commercial General Liability insurance on an occurrence basis in amounts not less than $2,000,000 ($1,000,000 of which may be in excess umbrella coverage) naming Landlord, the Property Manager and Cerberus as additional insureds for ongoing and completed operations using ISO Forms CG 2010 04/13 and CG 2037 04/13 (or other equivalent forms approved in writing by Landlord).

(b) Workers' compensation insurance in amounts required by statute and employer's liability coverage with limits of not less than $500,000 each accident for bodily injury by accident, $500,000 each employee for bodily injury by disease, and $500,000 policy limit for bodily injury by disease.

(c) Business Automobile Liability insurance (including owned, non-owned and hired automobiles) on an occurrence basis naming Landlord, the Property Manager and Cerberus as additional insureds with limits not less than:

Bodily Injury	$1,000,000 each person
	$1,000,000 each accident
Property Damage	$1,000,000 each accident

(d) Umbrella/Excess Liability with limits of not less than $5,000,000 per occurrence in excess of (a-c) above for work considered high hazard in accordance with Cerberus' industry risk matrix (a copy of which is available upon request).

22. CERTIFICATE OF INSURANCE

NAMED INSUREDS: OWNER, THE PROPERTY MANAGER FOR OWNER, CERBERUS, AND ANY MORTGAGEE AND/OR GROUND LESSOR OF THE BUILDING AND/OR THE LAND

Certificates of Insurance in the form of an ACORD 25-S certificate evidencing the required coverages and naming the additional insureds as stated MUST be furnished thirty (30) days prior to starting the contract work. Each certificate will contain a provision that no cancellation or material change in the policies will be effective except upon thirty (30) days' prior written notice.

23. EMERGENCY PROCEDURES

In case of an emergency, Contractor shall call the police/fire department and/or medical services, followed immediately by a call to the Property Manager.

24. DELIVERIES

At no time will the Building staff accept deliveries on behalf of Contractor or any subcontractor.

25. CHANGES

THESE CONTRACTOR RULES AND REGULATIONS ARE SUBJECT TO CHANGE AND ARE NOT LIMITED TO WHAT IS CONTAINED HEREIN. LANDLORD AND THE PROPERTY MANAGER RESERVE THE RIGHT TO IMPLEMENT ADDITIONAL RULES AND REGULATIONS AS MAY BE PRUDENT BASED ON EACH INDIVIDUAL PROJECT.

EXHIBIT C-2

ENERGY AND SUSTAINABILITY
CONSTRUCTION GUIDELINES AND REQUIREMENTS

Any and all Alterations, improvements, or additions performed by Tenant will be performed in accordance with this Exhibit C-2, and any modifications thereto by Landlord, notwithstanding any more permissive local building codes or ordinances.

HVAC Equipment

1. Tenant-installed HVAC and refrigeration equipment and fire suppression systems ***shall not*** contain CFCs.
1. Ensure tenant-installed HVAC systems tie into the Building's Building Automation System.
1. Avoid the installation of HVAC and refrigeration equipment containing HCFCs when reasonable.

Appliances and Equipment

Install only ENERGY STAR-certified appliances. ***Recommend*** the use of ENERGY STAR-certified office equipment, electronics and commercial food service equipment in all instances where such product is available.

Plumbing

Install only new plumbing fixtures that meet the following:

1. Lavatory faucets: 0.5 gallons per minute (GPM) tamper-proof aerators
1. Pantry/Kitchenette faucets: 1.5 GPM tamper-proof aerators
1. Water closets: 1.28 gallons per flush (GPF)
1. Urinals: 0.125 GPF
1. Showerheads: Meet the requirements of EPA WaterSense-labeled products
1. Commercial Pre-rinse Spray valves (for food service applications): 1.6 or less GPM

Lighting

1. ***Recommend*** lighting loads do not exceed ASHRAE/IES Standard 90.1-2010. For example, the Maximum Lighting Power Density for office use is 0.9 watts per square foot; warehouse is 0.66 watts per square foot.

1. If the Premises contains regularly occupied office spaces, ***at a minimum***, install occupancy/vacancy sensors with manual override capability in all regularly occupied office spaces. Lighting controls shall be tested prior to occupancy to ensure that control elements are calibrated, adjusted and in proper working condition to achieve optimal energy efficiency.

1. ***Recommend*** installation of daylight-responsive controls in all regularly occupied office spaces within 15 feet of windows.

Data Center within the Premises

Tenant may not operate a Data Center within the Premises without the express written consent of Landlord. The term "**Data Center**" shall have the meaning set forth in the U.S. Environmental Protection Agency's ENERGY STAR® program and is a space specifically designed and equipped to meet the needs of high-density computing equipment, such as server racks, used for data storage and processing. The space will have dedicated, uninterruptible power supplies and cooling systems. Data Center functions may include traditional enterprise services, on-demand enterprise services, high-performance computing, internet facilities and/or hosting facilities. A Data Center does not include space within the Premises utilized as a "server closet" or for a computer training area. In conjunction with the completion and operation of the Data Center, Tenant shall furnish the following information to Landlord:

(1) Within ten (10) days of completion, Tenant shall report to Landlord the total Rentable Area (in square feet) of the Data Center measured between the principal exterior surfaces of the enclosing fixed walls and including all supporting functions dedicated for use in the Data Center, such as any raised-floor computing space, server rack aisles, storage silos, control console areas, battery rooms, mechanical rooms for cooling equipment, administrative office areas, elevator shafts, stairways, break rooms and restrooms. If Tenant alters or modifies the area of the Data Center, Tenant shall furnish an updated report to Landlord on the square footage within ten (10) days following completion of the alterations or modifications.

(2) Within ten (10) days following the close of each month of operation of the Data Center, monthly IT Energy Readings at the output of the Uninterruptible Power Supply (UPS), measured in total kWh utilized for the preceding month (as opposed to instantaneous power readings), failing which in addition to same being an Event of Default under the Lease, Tenant shall be obligated to pay to Landlord the Late Reporting Fee referenced in the Lease.

Building Materials

1. Architect and general contractor ***shall endeavor*** to specify low-VOC paints, coatings, primers, adhesives, sealants, sealant primers, coatings, stains, finishes and the like. Suggested VOC limits are at the end of this document.

1. Architect and general contractor ***shall endeavor*** to specify materials that meet the following criteria:

- Harvested and processed or extracted and processed within a 500-mile radius of the project site.
- Contain at least 10% post-consumer or 20% pre-consumer materials.
- Contain material salvaged from offsite or on-site.
- Contain rapidly renewable material.
- Made of wood-based materials, excluding movable furniture, certified as harvested from sustainable sources, specifically Forest Stewardship Council (FSC)-certified wood.
- Carpet meeting or exceeding the requirements of the CRI Green Label Plus Testing Program and recyclable where available.
- Carpet cushion meeting or exceeding the requirements of the CRI Green Label Testing Program.

- Preferably, at least 25% of the hard surface flooring (not carpet) will be FloorScore-certified.
- Composite wood or agrifiber products shall contain no added urea-formaldehyde resins.

Contractor Practices

1. General Contractor ***shall implement*** the Building's Waste Management Plan to reuse, recycle and salvage building materials and waste during both demolition and construction phases.

1. General Contractor ***shall implement*** appropriate Indoor Air Quality Protocols for construction activity.

Resources

For actual regulations, rules and standards visit:

SCAQMD
BAAQMD
Green Seal

EXHIBIT D

PROJECT RULES AND REGULATIONS

The following rules and regulations shall apply to the Project, including the Parking Garage:

1. Tenant shall not obstruct any sidewalks, halls, passages, exits, entrances, elevators or stairways of the Building. The halls, passages, exits, entrances, elevators and stairways of the Building are not open to the general public, but are open, subject to reasonable regulation, to Tenant's business invitees. Landlord shall in all cases retain the right to control and prevent access thereto of all persons whose presence in the judgment of Landlord would be prejudicial to the safety, character, reputation and interest of the Building and its tenants; provided, however, that nothing herein contained shall be construed to prevent such access to persons with whom any tenant normally deals in the ordinary course of its business, unless such persons are engaged in illegal or unlawful activities. Under no circumstances may Tenant overburden the elevators or parking areas of the Project.

2. Plumbing fixtures and appliances shall be used only for the purposes for which designed, and no sweepings, rubbish, rags or other unsuitable material shall be thrown or deposited therein. Damage resulting to any such fixtures or appliances from misuse by a tenant or its agents, employees or invitees, shall be paid by such tenant.

3. Landlord shall provide all door locks in the Premises, as part of the Work, and Tenant shall not place any additional door locks in the Premises or otherwise alter the door locks without Landlord's prior written consent. Landlord shall furnish to Tenant a reasonable number of keys (and/or electronic card keys) to the Premises, at Tenant's cost, and Tenant shall not make duplicates thereof.

4. The Building elevators shall be available for use by Tenant during its move-in and move-out process, subject to (i) Landlord's rules and regulations applicable to the movement of furnishings and equipment in effect from time to time and (ii) such reasonable scheduling as Landlord, in its discretion, shall deem appropriate. No equipment, materials, furniture, packages, supplies, merchandise or other property will be received in the Building or carried in the elevators except between such hours and in such elevators as may be designated by Landlord. Tenant's initial move-in and subsequent deliveries of bulky items, such as furniture, safes and similar items shall, unless otherwise agreed in writing by Landlord, be made during the hours of 6:00 p.m. to 6:00 a.m. or on Saturday or Sunday. Deliveries during normal office hours shall be limited to normal office supplies, drinking water and other small items. No deliveries shall be made which impede or interfere with other tenants or the operation of the Building.

5. Tenant shall not place a load upon any floor of the Premises which exceeds the load per square foot which such floor was designed to carry. Landlord shall have the right to prescribe the weight, size and position of all equipment, materials, furniture or other property brought into the Building. Heavy objects shall, if considered necessary by Landlord, stand on such platforms as determined by Landlord to be necessary to properly distribute the weight, which platforms shall be provided at Tenant's expense. Business machines and mechanical equipment belonging to Tenant, which cause noise or vibration that may be transmitted to the structure of the Premises or to any space therein to such a degree to be objectionable to Landlord or to any tenants in the Building, shall be placed and maintained by Tenant, at Tenant's expense, on vibration eliminators or other devices sufficient to eliminate noise or vibration. The persons

employed to move such equipment in or out of the Premises must be acceptable to Landlord. Landlord will not be responsible for loss of, or damage to, any such equipment or other property from any cause, and all damage done to the Premises or the Building by maintaining or moving such equipment or other property shall be repaired at the expense of Tenant.

6. Tenant shall not make or permit any vibration or improper, objectionable or unpleasant noises or odors in the Building or otherwise interfere in any way with other tenants or persons having business with them. Tenant shall not use or keep on the Premises or the Building any kerosene, gasoline or inflammable or combustible fluid or material, or use any heating or air conditioning other than that supplied, or approved in advance in writing, by Landlord.

7. No Tenant and no employee or invitee of Tenant shall go upon the roof of the Building for any reason.

8. Corridor doors, when not in use, shall be kept closed.

9. No portion of the Premises shall at any time be used or occupied as sleeping or lodging quarters.

10. No birds or animals (other than guide animals or service animals) shall be brought into or kept in, on or about the Premises.

11. No cooking shall be done or permitted on the Premises without Landlord's consent, except that use by Tenant of Underwriter's Laboratory approved equipment for brewing coffee, tea, hot chocolate and similar beverages or use of microwave ovens for employee use shall be permitted, provided that such equipment and use is in accordance with all applicable Laws.

12. No vending or dispensing machines of any kind may be maintained in the Premises without the prior written consent of Landlord, other than those used solely for Tenant's employees.

13. The Premises shall not be used for the storage of merchandise held for sale to the general public, or for manufacturing of any kind, nor shall the Premises be used for any improper, immoral or objectionable purpose.

14. Tenant shall not conduct any activity on or about the Premises or the Building that is disreputable or which may draw pickets, demonstrators, or the like.

15. Canvassing, soliciting or peddling in or about the Project is prohibited and Tenant shall cooperate to prevent same.

16. Tenant shall not conduct nor allow to be conducted any auction on the Premises or the Project.

17. All incoming mail and package deliveries shall be received at the area in the Building designated by Landlord for such purposes and distributed through means established by Landlord from time to time. No messenger or other delivery personnel shall be permitted to enter into any area of the Building other than the area designated by Landlord for the pick-up and receipt of such deliveries. Landlord shall notify Tenant as soon as reasonably possible after a delivery for Tenant has been received.

18. Tenant shall store all its trash and garbage within its Premises or in other facilities provided by Landlord. Tenant shall not place in any trash box or receptacle any material which cannot be disposed of in the ordinary and customary manner of trash and garbage disposal. All garbage and refuse disposal shall be made in accordance with directions issued from time to time by Landlord. Tenant shall comply with the Building's recycling program in effect from time to time.

19. If Landlord objects to any curtains, blinds, shades, screens or hanging plants or other similar objects attached to or used in connection with any window or door of the Premises, or placed on any windowsill, which is visible from the exterior of the Premises, Tenant shall immediately discontinue such use. Tenant shall not place anything against or near glass partitions or doors or windows which may appear unsightly from outside the Premises.

20. Tenant shall not permit its employees, invitees or guests to smoke in the Premises or in the lobbies, hallways, elevators, stairways, restrooms or other portions of the Building. Nor shall Tenant permit its employees, invitees or guests to loiter at the Building entrances for the purposes of smoking.

21. All cleaning and janitorial services for the Building and the Premises shall be provided exclusively through Landlord, and except with the written consent of Landlord, no person or persons other than those approved by Landlord shall be employed by Tenant or permitted to enter the Building for the purpose of cleaning the same. Tenant shall not cause any unnecessary labor by carelessness or indifference to the good order and cleanliness of the Premises.

22. Tenant shall not mark, drive nails, screw or drill into the partitions, woodwork or plaster or in any way deface the Premises or any part thereof, except in accordance with the provisions of the Lease pertaining to Alterations; provided, however, that Tenant shall be permitted to hang pictures and wall plaques on the Premises walls in the ordinary course of business. Landlord reserves the right to direct electricians as to where and how telephone wires are to be introduced to the Premises. Tenant shall not cut or bore holes for wires. Tenant shall not affix any floor covering to the floor of the Premises in any manner except as approved by Landlord. Tenant shall repair any damage resulting from noncompliance with this rule.

23. Tenant shall not use in the Premises or the Building any hand truck except those equipped with rubber tires and side guards or such other material-handling equipment as Landlord may approve. Tenant shall not bring any other vehicles of any kind into the Building.

24. Tenant shall comply with all safety, fire protection and evacuation procedures and regulations established by Landlord or any governmental agency from time to time.

25. The directory of the Building will be provided exclusively for the display of the name and location of tenants only, and Landlord reserves the right to exclude any other names therefrom.

26. Tenant shall not install any radio or television antenna, loudspeaker or other devices on the roof or exterior walls of the Building. Tenant shall not interfere with radio or television broadcasting or reception from or in the Building or elsewhere.

27. Tenant and its telecommunications companies, including local exchange telecommunications companies and alternative access vendor services companies, shall have no right of access to and within the Building for the installation and operation of telecommunications systems, including voice, video, data, Internet and any other services provided over wire, fiber

optic, microwave, wireless and any other transmission systems for part or all of Tenant's telecommunications within the Building and from the Building to any other location without Landlord's prior written consent. All providers of any such telecommunications services shall be required to comply with the rules and regulations of the Building, applicable Laws and Landlord's policies and practices for the Building. Tenant acknowledges that Landlord shall not be required to provide or arrange for any telecommunications services and that Landlord shall have no liability to any Tenant Party in connection with the installation, operation or maintenance of telecommunications services or any equipment or facilities relating thereto. Tenant, at its cost and for its own account, shall be solely responsible for obtaining all telecommunications services.

28. Tenant shall ensure that the doors of the Premises are closed and securely locked before leaving the Building and must observe strict care and caution that all water faucets or water apparatus utilized by Tenant are entirely shut off before Tenant leaves the Building, and that all electricity shall likewise be carefully shut off, so as to prevent waste or damage.

29. Landlord will not be responsible for lost or stolen personal property, money or jewelry from the Premises or public or common areas of the Building or the Project regardless of whether such loss occurs when the area is locked against entry or not.

30. Landlord reserves the right to exclude from the Building during non-Normal Business Hours, or such other hours as may be established from time to time by Landlord, and on Saturdays, Sundays and Holidays, any person unless that person is known to the person or employee in charge of the Building and has a pass or is properly identified. Tenant shall be responsible for all persons for whom it requests passes and shall be liable to Landlord for all acts of such persons. Landlord reserves the right to exclude or expel from the Building any person who, in Landlord's judgment, is intoxicated or under the influence of liquor or drugs or who is in violation of any of the rules and regulations of the Project. Landlord shall not be liable for damages for any error with regard to the admission to or exclusion from the Building of any person. Landlord reserves the right to prevent access to the Building in case of invasion, mob, riot, public excitement or other commotion by closing the doors or by other appropriate action.

31. Tenant hereby acknowledges that Landlord shall have no obligation whatsoever to provide guard service or other security measures for the benefit of the Premises or the Building. Tenant assumes all responsibility for the protection of Tenant, its employees, agents, contractors and invitees and the property of Tenant and of Tenant's employees, agents, contractors and invitees from acts of third parties. Nothing herein contained shall prevent Landlord, at Landlord's sole option, from providing security protection or security programs for the Project or any part thereof, in which event the cost thereof shall be included within the definition of Operating Costs, as set forth elsewhere in the Lease. Landlord may implement such security programs and/or modifications thereto as Landlord deems reasonably necessary in connection with the protection of Landlord's property, and Tenant shall comply therewith. Tenant acknowledges and agrees that such security measures may include monitoring of deliveries and/or implementation of mail room screening procedures.

32. Tenant, its employees, agents, contractors and invitees shall not tamper with or disable any security cameras or any Building systems in any way, including propping open doors, altering locking mechanisms or any act that might interfere with the proper operation of any doors.

33. Tenant acknowledges and agrees that any security provided by Landlord pursuant to the Lease is for the sole purpose of access control and/or emergency preparedness and is intended to protect Landlord's property, and is not intended to provide security for Tenant's property and/or personnel in or about the Premises. In no event shall implementation of any security procedures or programs by Landlord constitute any warranty of safety or expose Landlord to any liability whatsoever regardless of whether the same are claimed to have been either insufficient or overly stringent, nor shall Tenant have the right to rely thereon. In no event shall Landlord be responsible, in any capacity or to any extent, for the entry of any person on or about the Project or for any resulting criminal or terrorist activity.

34. In accordance with applicable Laws, only service animals that assist persons with disabilities (including guide dogs for persons with vision impairments, hearing dogs for persons with hearing impairments, and emotional assistance animals for persons with chronic mental illness) shall be permitted in the Building.

35. Tenant's requirements will be attended to only upon appropriate application to the Building management office by an authorized individual. Employees of Landlord shall not perform any work or do anything outside of their regular duties unless under special instructions from Landlord, and no employee of Landlord will admit any person (Tenant or otherwise) to any office without specific instructions from Landlord.

36. Landlord may waive any one or more of these rules and regulations for the benefit of Tenant or any other tenant, but no such waiver by Landlord shall be construed as an ongoing waiver of such rules and regulations in favor of Tenant or any other tenant, nor prevent Landlord from thereafter enforcing any such rules and regulations against any or all of the tenants of the Building.

37. These rules and regulations are in addition to, and shall not be construed to in any way modify or amend, in whole or in part, the terms, covenants, agreements and conditions of Tenant's Lease of its Premises in the Building.

38. Landlord reserves the right to make such other and reasonable rules and regulations as, in its judgment, may from time to time be needed for safety and security, for care and cleanliness of the Building and for the preservation of good order therein. Tenant agrees to abide by all such rules and regulations hereinabove stated and any additional rules and regulations which are adopted.

39. Tenant shall be responsible for the observance of all of the foregoing rules and regulations by Tenant's employees, agents, clients, customers, invitees and guests.

40. Landlord shall not be responsible for the non-performance of these rules and regulations by other tenants or occupants of the Building.

PARKING RULES AND REGULATIONS

The following rules and regulations shall govern use of the Parking Garage.

1. All claimed damage or loss must be reported and itemized in writing delivered to Landlord within three (3) business days after any claimed damage or loss occurs. Any claim not so made is waived. Landlord has the option to make repairs at its expense of any claimed damage within two (2) business days after filing of any claim. In all court actions the burden of proof to establish a claim remains with Tenant. Court actions by Tenant for any claim must be filed in the court of jurisdiction where a claimed loss occurred within ninety (90) days after the date of damage or loss. Landlord is not responsible for damage by water, fire or defective brakes, or parts, or for the act of omissions of others, or for articles left in the car. The total liability of Landlord is limited to $250.00 for all damages or loss to any car. Landlord is not responsible for loss of use.

2. Tenant shall not park or permit the parking of any vehicle under its control in any parking areas designated by Landlord as areas for parking by visitors to the Building. Tenant shall not leave vehicles in the parking areas overnight, nor park any vehicles in the parking areas other than automobiles, motorcycles, motor driven or non-motor driven bicycles or four-wheeled trucks. No overnight or extended term storage of vehicles shall be permitted.

3. Parking stickers or any other device or form of identification supplied by Landlord as a condition of use of the parking facilities shall remain the property of Landlord. Such parking identification device must be displayed as requested and may not be mutilated in any manner. The serial number of the parking identification device may not be obliterated. Devices are not transferable and any device in the possession of an unauthorized holder will be void.

4. Vehicles must be parked entirely within the painted stall lines of a single parking stall.

5. All directional signs and arrows must be observed.

6. The speed limit within all parking areas shall be 5 miles per hour.

7. Parking is prohibited: (i) in areas not striped for parking; (ii) in aisles; (iii) where “no parking” signs are posted; (iv) on ramps; (v) in cross hatched areas; and (vi) in such other areas as may be designated by Landlord or Landlord’s parking operator from time to time.

8. Every parker is required to park and lock his or her own vehicle. All responsibility for damage to vehicles is assumed by the parker.

9. Loss or theft of parking identification devices from automobiles must be reported immediately, and a lost or stolen report must be filed by the customer at that time. Lost or stolen devices found by the parker must be reported immediately to avoid confusion. Landlord has the right to exclude any car from the Parking Garage that does not have an identification.

10. Any parking identification devices reported lost or stolen found on any unauthorized car will be confiscated and the illegal holder will be subject to prosecution.

11. Washing, waxing, cleaning or servicing of any vehicle in any area not specifically reserved for such purpose is prohibited.

12. Landlord reserves the right to refuse the sale of monthly stickers or other parking identification devices to any tenant or person and/or its agents or representatives who willfully refuse to comply with these parking rules and regulations and all unposted city, state or federal rules, ordinances or laws.

13. Landlord reserves the right to modify and/or adopt such other reasonable and non-discriminatory rules and regulations for the Parking Garage as it deems necessary for the operation of the Parking Garage. Landlord may refuse to permit any person who violates these rules to park in the Parking Garage, and any violation of the rules shall subject the car to removal.

14. Landlord reserves the right to charge for parking on a non-discriminatory basis at market rates and subject to annual increases in Landlord's sole discretion.

15. Landlord shall have the right to remove and tow away any vehicles which are not authorized to park at the Parking Garage and charge the costs thereof to tenant.

16. No loading or unloading shall occur in the Parking Garage other than those areas designated by Landlord for such purpose.

17. Only automobiles no larger than full size passenger automobiles or pick up trucks or standard business use vehicles which do not require parking spaces larger than full size passenger automobiles may be parked in the Parking Garage.

EXHIBIT E

FORM OF COMMENCEMENT DATE MEMORANDUM

_____, 2020

_____
_____
_____
_____

Re: Office Lease Agreement (the "**Lease**") dated as of February 13, 2020, between DC

STATION OWNER, LLC, a Delaware limited liability company ("**Landlord**"), and SPRUCE BIOSCIENCES, INC., a Delaware corporation ("**Tenant**"). Capitalized terms used herein but not defined shall be given the meanings assigned to them in the Lease.

Ladies and Gentlemen:

1. **Condition of Premises**. Tenant has accepted possession of the Premises pursuant to the Lease. Any improvements required by the terms of the Lease to be made by Landlord have been completed to the full and complete satisfaction of Tenant in all respects except for the punchlist items (if any) described on Exhibit A hereto (the "**Punchlist Items**"), and except for such Punchlist Items (if any), Landlord has fulfilled all of its duties under the Lease with respect to such initial tenant improvements. Furthermore, Tenant acknowledges that the Premises are suitable for the Permitted Use.

2. **Commencement Date**. The Commencement Date of the Lease is _____, 201_.

3. **Expiration Date**. The initial Term is scheduled to expire on the last day of the 63rd full calendar month of the Term, which date is _____, 20_.

4. **Contact Person**. Tenant's contact person in the Premises is:

_____
_____
_____
Attention:_____
Telephone:_____
Facsimile:_____
Email:_____

5. **Ratification**. Tenant hereby ratifies and confirms its obligations under the Lease. Additionally, Tenant further confirms and ratifies that, as of the date hereof, (a) the Lease is and remains in good standing and in full force and effect, and (b) Tenant has no claims, counterclaims, set-offs or defenses against Landlord arising out of the Lease or in any way relating thereto or arising out of any other transaction between Landlord and Tenant.

6. **Binding Effect; Governing Law**. Except as modified hereby, the Lease shall remain in full force and effect and this letter shall be binding upon Landlord and Tenant and their respective successors and assigns. If any inconsistency exists or arises between the terms of this letter and the terms of the Lease, the terms of this letter shall prevail. This letter shall be governed by the laws of the State of California.

Please indicate your agreement to the above matters by signing this letter in the space indicated below and returning an executed original to us.

Sincerely,

DC STATION OWNER, LLC,
a Delaware limited liability company

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

Agreed and accepted:

SPRUCE BIOSCIENCES, INC.,
a Delaware corporation

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

EXHIBIT A TO EXHIBIT E

PUNCHLIST ITEMS

Please insert any punchlist items that remain to be performed by Landlord. If no items are listed below by Tenant, none shall be deemed to exist.

EXHIBIT F

FORM OF TENANT ESTOPPEL CERTIFICATE

The undersigned is the Tenant under the Lease (defined below) between DC STATION OWNER, LLC, a Delaware limited liability company, as Landlord, and the undersigned, as Tenant, for the premises commonly known as Suite 640 (the "**Premises**") located on the sixth (6th) floor of the office building located at 2001 Junipero Serra Boulevard, Daly City, California, and hereby certifies as follows:

1. The Lease consists of the original Office Lease Agreement dated as of Feburary 11, 2020 between Tenant and Landlord and the following amendments or modifications thereto (if none, please state "none"): _____
_____.

The documents listed above are herein collectively referred to as the "**Lease**" and represent the entire agreement between the parties with respect to the Premises. All capitalized terms used herein but not defined shall be given the meaning assigned to them in the Lease.

2. The Lease is in full force and effect and has not been modified, supplemented or amended in any way except as provided in Section 1 above.

3. The Term commenced on _____ 201__, and the Term expires, excluding any renewal options, on _____, 201__, and Tenant has no option to purchase all or any part of the Premises or the Building or, except as expressly set forth in the Lease, any option to terminate or cancel the Lease.

4. Tenant currently occupies the Premises described in the Lease and Tenant has not transferred, assigned or sublet any portion of the Premises nor entered into any license or concession agreements with respect thereto except as follows (if none, please state "**none**"):
_____.

5. All monthly installments of Base Rent and Additional Rent have been paid when due through _____, 20__. The current monthly installment of Base Rent is $_____.

6. To Tenant's actual knowledge, the Lease is in full force and effect and Landlord is not in default thereunder. In addition, Tenant has not delivered any notice to Landlord regarding a default by Landlord thereunder.

7. As of the date hereof, to Tenant's knowledge, there are no existing defenses or offsets, or, to the undersigned's knowledge, claims or any basis for a claim, that the undersigned has against Landlord and no event has occurred and no condition exists, which, with the giving of notice or the passage of time, or both, will constitute a default under the Lease.

8. No rental has been paid more than thirty (30) days in advance and no security deposit has been delivered to Landlord except as provided in the Lease.

9. If Tenant is a corporation, partnership or other business entity, each individual executing this Estoppel Certificate on behalf of Tenant hereby represents and warrants that Tenant is a duly formed and existing entity qualified to do business in the State of California and that Tenant has full right and authority to execute and deliver this Estoppel Certificate and that each person signing on behalf of Tenant is authorized to do so.

10. There are no actions pending against Tenant under any bankruptcy or similar laws of the United States or any state.

11. Other than as approved by Landlord in writing and used in compliance with all applicable laws and incidental to the ordinary course of the use of the Premises, the undersigned has not used or stored any hazardous materials or hazardous substances in the Premises.

12. All tenant improvement work to be performed by Landlord under the Lease has been completed in accordance with the Lease and has been accepted by the undersigned and all reimbursements and allowances due to the undersigned under the Lease in connection with any tenant improvement work have been paid in full.

Tenant acknowledges that this Estoppel Certificate may be delivered to Landlord, Landlord's Mortgagee or to a prospective mortgagee or prospective purchaser, and their respective successors and assigns, and acknowledges that Landlord, Landlord's Mortgagee and/or such prospective mortgagee or prospective purchaser will be relying upon the statements contained herein in disbursing loan advances or making a new loan or acquiring the property of which the Premises are a part and that receipt by it of this certificate is a condition of disbursing loan advances or making such loan or acquiring such property.

Executed as of _____, 20_.

TENANT: SPRUCE BIOSCIENCES, INC.,
a Delaware corporation

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

EXHIBIT G

RENEWAL OPTION

A. Subject to Paragraph F below, Tenant may renew this Lease for one (1) additional period of five (5) years (the "**Renewal Term**"), by delivering written notice (the "**Renewal Notice**") of the exercise thereof to Landlord not earlier than twelve (12) months nor later than nine (9) months before the expiration of the initial Term. The Base Rent payable for each month during the Renewal Term shall be the Fair Market Rent (as defined below) as of the commencement date of the Renewal Term; provided, however, that in no event shall the monthly Base Rent for the Renewal Term be less than the monthly Base Rent payable hereunder for the last full month of the initial Term. Within thirty (30) days after receipt of Tenant's Renewal Notice, Landlord shall deliver to Tenant written notice of Landlord's Fair Market Rent proposal for the Renewal Term ("**Landlord's Fair Market Rent Proposal**") and shall advise Tenant of the required adjustment to Base Rent, if any, and the other terms and conditions offered. Within ten (10) Business Days after receipt of Landlord's Fair Market Rent Proposal, Tenant shall notify Landlord in writing whether Tenant accepts or rejects Landlord's Fair Market Rent Proposal. If Tenant rejects Landlord's Fair Market Rent Proposal, then Tenant's written notice shall include Tenant's determination of the Fair Market Rent. If Tenant does not deliver Tenant's written determination of Fair Market Rent to Landlord within ten (10) Business Days after receipt of Landlord's Fair Market Rent Proposal, Tenant will be deemed to have accepted Landlord's Fair Market Rent Proposal. If Tenant and Landlord disagree on the Fair Market Rent as evidenced by Landlord's Fair Market Rent Proposal, then Landlord and Tenant shall attempt in good faith to agree upon the Fair Market Rent. If by that date which is six (6) months prior to the commencement of the Renewal Term (the "**Trigger Date**"), Landlord and Tenant have not agreed in writing as to the Fair Market Rent, the parties shall determine the Fair Market Rent in accordance with the procedure set forth in Paragraph C below. In all events, Tenant's exercise of its renewal option right hereunder shall be binding upon Tenant and not subject to rescission.

B. For purposes of this Exhibit, the term "**Fair Market Rent**" shall mean the rental rate for comparable space to be used for office purposes under primary lease (and not sublease) to new tenants, taking into consideration: (i) such amenities as existing improvements, location of the Premises in the Building and the like, situated in comparable office buildings in Northern San Mateo County, California, in comparable physical and economic condition, (ii) the credit standing of Tenant, and (iii) the then prevailing ordinary rental market practices with respect to tenant concessions; provided, however, that the determination of Fair Market Rent shall not take into account tenant improvement allowances, free rent or other allowances or concessions typically offered to attract new tenants to the Building or comparable office buildings. Fair Market Rent shall include the periodic rental increases, if any, that would be included for space leased for the period the Premises will be covered by the Lease. As used herein, "**then prevailing**" shall mean the commencement date of the Renewal Term.

C. If Landlord and Tenant are unable to reach agreement on the Fair Market Rent by the Trigger Date, then within seven (7) days of the Trigger Date, Landlord and Tenant shall each simultaneously submit to the other in a sealed envelope its good faith estimate of the Fair Market Rent for the Renewal Term. If either Landlord or Tenant fails to propose a Fair Market Rent, then the Fair Market Rent for the Renewal Term proposed by the other party shall prevail. If the higher of such estimates is not more than one hundred five percent (105%) of the lower, then the Fair Market Rent shall be the average of the two. Otherwise, the dispute shall be resolved by arbitration in accordance with the remainder of this Paragraph C. Within seven (7) days after the exchange of estimates, the parties shall select as an arbitrator either (i) a licensed real estate

broker with at least ten (10) years of experience leasing premises in office buildings in Northern San Mateo County or (ii) an independent MAI appraiser with at least five (5) years of experience in appraising office buildings in Northern San Mateo County (a "**Qualified Arbitrator**"). If the parties cannot agree on a Qualified Arbitrator, then within a second period of seven (7) days, each shall select a Qualified Arbitrator and within ten (10) days thereafter the two appointed Qualified Arbitrators shall select a third Qualified Arbitrator and the third Qualified Arbitrator shall be the sole arbitrator. If the two Qualified Arbitrators are unable to agree upon the third Qualified Arbitrator within the referenced ten (10)-day period, the third Qualified Arbitrator shall be selected by the parties themselves, if they can agree thereon, within a further period of ten (10) days. If the parties do not so agree, then either party, on behalf of both, may request that the appointment of such third Qualified Arbitrator be made in accordance with the selection procedures of the commercial arbitration rules of the American Arbitration Association ("**AAA**") or its successor for arbitration of commercial disputes. If one party shall fail to select a Qualified Arbitrator within the second seven (7)-day period, then the Qualified Arbitrator chosen by the other party shall be the sole arbitrator (the single Qualified Arbitrator initially selected by both parties, the third Qualified Arbitrator appointed by the two (2) Qualified Arbitrators selected by the parties, or the one Qualified Arbitrator selected via the AAA, as applicable, shall hereafter be referred to as the "**Sole Arbitrator**"). Within thirty (30) days after submission of the matter to the Sole Arbitrator, the Sole Arbitrator shall determine the Fair Market Rent by choosing whichever of the estimates submitted by Landlord and Tenant the Sole Arbitrator judges to be more accurate. The Sole Arbitrator shall notify Landlord and Tenant of his or her decision, which shall be final and binding. If the Sole Arbitrator believes that expert advice would materially assist him or her, the Sole Arbitrator may retain one or more qualified persons to provide expert advice. The parties shall reasonably cooperate with any request from the Sole Arbitrator for information regarding the parties' respective estimates of Fair Market Rent for the Renewal Term. The fees of the Sole Arbitrator and the expenses of the arbitration proceeding, including (i) the costs of the AAA proceeding, if any, and (ii) the fees of any expert witnesses retained by the Sole Arbitrator, shall be shared equally by Landlord and Tenant. The fees of each party's respective Qualified Arbitrator shall be borne by that party. Further, each party shall pay the fees of its respective counsel and the fees of any witness called by that party.

D. On or before the commencement date of the Renewal Term, Landlord and Tenant shall execute an amendment to this Lease prepared by Landlord extending the Term on the same terms provided in this Lease, except as follows:

(i) Base Rent shall be adjusted to the Fair Market Rent (which shall be the rental rate set forth in Landlord's Fair Market Rent Proposal or the Fair Market Rent determined by mutual agreement or by arbitration, as the case may be); provided, however, that in no event shall the monthly Base Rent for the Renewal Term be less than the monthly Base Rent payable hereunder for the last full month of the initial Term;

(ii) Tenant shall have no further renewal option unless expressly granted by Landlord in writing; and

(iii) Except as otherwise agreed upon by Landlord in writing, Landlord shall lease to Tenant the Premises in their then-current condition, and Landlord shall not provide to Tenant any allowances (e.g., a construction allowance) or other tenant inducements.

E. In the event that Fair Market Rent is not established prior to the commencement of the Renewal Term, then Tenant shall continue to pay the Base Rent at the rate in effect immediately prior to the expiration of the initial Term of the Lease, and within thirty (30) days of the determination of Fair Market Rent, the parties shall reconcile any difference.

F. Tenant's rights under this Exhibit shall terminate if: (i) this Lease or Tenant's right to possession of the Premises is terminated; (ii) Tenant assigns any of its interest in this Lease or sublets any portion of the Premises other than to a Permitted Transferee; (iii) Tenant fails to timely exercise its option under this Exhibit, time being of the essence with respect to Tenant's exercise thereof; or (iv) an Event of Default is continuing as of the date of the Renewal Notice or the expiration of the initial Term or there have been more than two (2) Events of Default at any time during the initial Term.

Exhibit 10.20

Certain information in this document identified by brackets has been omitted because it is both not material and would be competitively harmful if publicly disclosed.

Execution Version

LICENSE AGREEMENT

by and among

SPRUCE BIOSCIENCES, INC.

and

ELI LILLY and COMPANY

LICENSE AGREEMENT

This Agreement (the "**Agreement**"), effective as of the last date executed below (the "**Effective Date**"), is entered into by and among Spruce Biosciences, Inc., a Delaware corporation with a place of business at 548 Market St., Suite 74598, San Francisco, California, 94104 ("**Spruce**"), and Eli Lilly and Company, an Indiana corporation with a place of business at Lilly Corporate Center, Indianapolis, Indiana, 46285 ("**Lilly**"). Spruce and Lilly may be referred to herein individually as a "**Party**" or collectively as the "**Parties**".

Recitals:

A. Lilly has developed and controls certain technology, patent rights and proprietary materials related to Corticotropin-Releasing Hormone-1 (CRH-1) receptor antagonist compounds, including LY2371712.

B. Lilly wishes to grant to Spruce, and Spruce wishes to receive, an exclusive license to such technology, patent rights and proprietary materials under the terms and conditions set forth in this Agreement.

Agreement:

1. **DEFINITIONS**

Unless specifically set forth to the contrary herein, the following terms, whether used in the singular or plural, shall have the respective meanings set forth below:

1.1 "**Act**" means the US Federal Food, Drug, and Cosmetic Act, as amended from time to time (21 U.S.C. Section 301 et seq.), together with any rules and regulations promulgated thereunder.

1.2 "**Affiliate**" means with respect to any Party, any person or entity controlling, controlled by or under common control with such Party. For purposes of this Article 1.1, "control" shall mean (a) in the case of a corporate entity, direct or indirect ownership of fifty percent (50%) or more of the stock or shares having the right to vote for the election of directors of such corporate entity and (b) in the case of an entity that is not a corporate entity, the possession, directly or indirectly, of the power to direct, or cause the direction of, the management or policies of such entity, whether through the ownership of voting securities, by contract or otherwise. Notwithstanding the foregoing, any stockholder of Spruce (which stockholder is a venture capital fund, venture capital operating company, private equity fund or individual), and any portfolio company of any such stockholder (or of any other entity that shares the same management company with the stockholder), shall not be deemed to be an Affiliate of Spruce, or to control or to be under common control with Spruce.

1.3 "**Applicable Laws**" shall mean all statutes, ordinances, regulations, rules or orders of any kind whatsoever, including all data protection laws and regulations, of any Governmental Authority that may be in effect from time to time and applicable to the activities contemplated by this Agreement.

1.4 "**Business Day**" means any day other than a Saturday or a Sunday on which the banks in New York, New York are open for business.

1.5 "**Calendar Quarter**" means the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31.

1.6 "**Calendar Year**" means the respective periods of twelve (12) months commencing on January 1 and ending on December 31.

1.7 "**Clinical Material(s)**" means Licensed Product formulated in accordance with the Specifications and applicable [***] laws, rules and regulations (a) for preclinical activities, and (b) for administration to subjects in clinical trials, including GCP and GMP ("**Applicable GMP**").

1.8 "**Combination(s)**" means a Licensed Product containing a Licensed Compound and one or more additional active pharmaceutical ingredients other than a Licensed Compound (each such additional ingredient, an "**Other Product**"), whether co-formulated or co-packaged.

1.9 "**Commercialization**" or "**Commercialize**" means activities taken before and after obtaining Regulatory Approval relating specifically to the pre-launch, launch, promotion, marketing, sales force recruitment, pricing determination, manufacturing, importation, offering for sale, sale and distribution for commercial sale, of a pharmaceutical product and post-launch medical activities, including without limitation: (a) manufacturing, importation and distribution for commercial sale; (b) strategic marketing, sales force detailing, advertising, and market and product support; (c) medical education and liaison and any phase IV clinical trials; (d) all customer support and product distribution, invoicing and sales activities; (e) all post-approval regulatory activities, including those necessary to maintain Regulatory Approvals; (f) expanded target product profile activities after receipt of initial Regulatory Approval for the relevant product; and (g) pricing, formulary and reimbursement related activities, including pricing and reimbursement approvals.

1.10 "**Commercially Reasonable Efforts**" means reasonable, good faith efforts to accomplish such objective as Spruce would normally use to accomplish a similar objective of Spruce under similar circumstances, it being understood and agreed that with respect to the Development or Commercialization of a Licensed Product such efforts shall be similar to those efforts and resources commonly used by Spruce for a similar pharmaceutical product owned by it or to which it has rights, which product is at a similar stage in its development or product life and is of similar market potential and taking into account efficacy, safety, approved labeling, the competitiveness of alternative products in the marketplace, the exclusivity of the product in view of its patent protection, patent life and other proprietary position of the product, the likelihood of Regulatory Approval given the regulatory structure involved and any other relevant factors.

1.11 "**Confidential Information**" means all confidential or proprietary information of one Party or its Affiliates (a "**Disclosing Party**"), regardless of its form or medium as provided to the other Party or its Affiliates (a "**Receiving Party**") in connection with the purpose of this Agreement, including Confidential Information provided under the [***] between the Parties effective as of [***] ("[***]"); provided that, Confidential Information shall not include any information that the Receiving Party can show by competent evidence: (i) is already known to it

or its Affiliates at the time it is disclosed any of them; (ii) is or becomes generally known to the public through no act or omission of the Receiving Party or any of its Affiliates in violation of the terms of this Agreement; (iii) has been lawfully received by the Receiving Party or any of its Affiliates from a Third Party without restriction on its disclosure and without a breach by such Third Party of an obligation of confidentiality to the Disclosing Party or any of its Affiliates; or (iv) has been independently developed by the Receiving Party or any of its Affiliates without use of or reference to the Confidential Information of the Disclosing Party or any of its Affiliates.

1.12 "**Control**", "**Controls**" **or** "**Controlled by**" means (except as used in Article 1.1, above), with respect to any item of or right under Patents or Know-How, the ability of the specified Party or any of its Affiliates, whether through ownership, license or other right (other than pursuant to this Agreement), to grant access to, license or sublicense such item or right without violating the terms of any agreement or other arrangement with any Third Party.

1.13 "**Data or Regulatory Exclusivity Period**" means the period during which the FDA (or, in countries other than the United States, an equivalent Regulatory Authority) prohibits obtaining Regulatory Approval of a pharmaceutical product based on reference to information in the regulatory submission materials of an approved product without the consent of the owner of the regulatory submission materials, to the clinical and other data that is contained in such materials, and that is not published or publicly available outside of such submission.

1.14 "**Develop**" or "**Development**" or "**Developing**" means research, discovery, process development, manufacturing and importation for preclinical and clinical uses, and preclinical and clinical drug or biological development activities, including, without limitation, test method development and stability testing, toxicology, formulation, quality assurance/quality control development, statistical analysis, preclinical and clinical studies and regulatory affairs, in each case, of a Licensed Product for use in the Field, and to the extent normally undertaken during the development (as opposed to Commercialization) phase of such Licensed Product's life cycle. Development shall exclude all Phase IV clinical trials.

1.15 "**FDA**" means the United States Food and Drug Administration or any successor agency thereto.

1.16 "**Field**" means all pharmaceutical uses, including all diagnostic, therapeutic and prophylactic uses, for human or animal administration.

1.17 "**First Commercial Sale**" means, with respect to any Licensed Product, the first sale to a Third Party for end use or consumption of such Licensed Product in a country after Regulatory Approval has been granted by the Regulatory Authority of such country, if such Regulatory Approval is required, or, if Regulatory Approval is not required, upon the first such sale.

1.18 "**GAAP**" means Generally Accepted Accounting Principles in the U.S. as the same may be in effect from time to time.

1.19 "**Good Clinical Practices**" or "**GCP**" means the then current standards for clinical trials for pharmaceuticals, as set forth in the Act or other Applicable Law, and such standards of good clinical practice as are required by the Regulatory Authorities of the US and the European Union and other organizations and Governmental Authorities in countries for which Licensed Product is intended to be Developed, to the extent such standards are not less stringent than United States GCP.

1.20 "**Good Manufacturing Practices**" or "**GMP**" means the regulatory requirements for current good manufacturing practices for pharmaceuticals promulgated by the FDA, as the same may be amended from time to time, and such standards of good manufacturing practice as are required by the Regulatory Authorities of the European Union and other organizations and Governmental Authorities in countries in which the applicable Licensed Product is intended to be manufactured or sold, to the extent such standards are not less stringent than United States GMP.

1.21 "**Governmental Authority**" shall mean any court, commission, authority, department, ministry, official or other instrumentality of, or being vested with public authority under any law of, any country, state or local authority or any political subdivision thereof, or any association of countries.

1.22 "**Government or Public Official**" means: (i) any official, officer, employee, representative, or anyone acting in an official capacity on behalf of: (a) any government or any department or agency thereof; (b) any public international organization (such as the United Nations, the International Monetary Fund, the International Red Cross, or the World Health Organization), or any department, agency, or institution thereof; or (c) any government-owned or controlled company, institution, or other entity, including a government-owned hospital or university; (ii) any political party or party official; and (iii) any candidate for political office.

1.23 "**IND**" means an Investigational New Drug application in the United States or, in any country other than the United States, a submission for approval to conduct human clinical investigations filed with or submitted to a Regulatory Authority in conformance with the requirements of such Regulatory Authority.

1.24 "**Know-How**" means any proprietary and confidential scientific or technical information, results and data of any type whatsoever, in any tangible or intangible form whatsoever, including any of the foregoing that are databases, safety information, practices, methods, techniques, specifications, formulations, formulae, knowledge, know-how, skill, experience, test data including pharmacological, medicinal chemistry, biological, chemical, biochemical, toxicological and clinical test data, analytical and quality control data, stability data, studies and procedures, manufacturing process and development information, results or data.

1.25 "**Lead Compound**" means Lilly's Corticotropin-Releasing Hormone-1 (CRH-1) receptor antagonist (Lilly Id. No.: LY2371712) with the structure set forth on Exhibit C, including [***].

1.26 "**Licensed Compound**" means (a) the Lead Compound, (b) any other Corticotropin-Releasing Hormone-1 receptor antagonist covered by Patents Controlled by Lilly, (c) any [***], and (d) any [***].

1.27 "**Licensed Product**" means any product containing a Licensed Compound, including any Combination(s) (marketed or investigational).

1.28 "**Licensed Know-How**" means all Know-how (excluding any Licensed Patents) that is (a) Controlled as of the Effective Date, or at any time during the Term, by Lilly or any of its Affiliates and (b) reasonably necessary or useful for manufacture, Development, Commercialization or use of a Licensed Product or Licensed Compound.

1.29 "**Licensed Patents**" means Patents or patent applications Controlled by Lilly or any of its Affiliates at any time during the term that contain one or more claims covering any Licensed Product or Licensed Compound, or the composition of matter, method of use or manufacture thereof, including without limitation the patents and applications listed on Exhibit A entitled "Licensed Patents" attached hereto, and including any provisionals, substitutions, divisions, continuations, continuations-in-part, reissues, renewals, registrations, confirmations, reexaminations, extensions, supplementary protection certificates and the like arising therefrom.

1.30 "**Net Sales**" means, with respect to a Licensed Product, the gross amount invoiced by Spruce (including its Affiliates) or any Sublicensee thereof to a Third Party, excluding any Sublicensee, for such Licensed Product, less the following items:

(a) [***];

(b) [***]; and

(c) [***];

(d) [***];

(e) [***];

(f) [***]; and

(g) [***].

Such amounts shall be determined from the books and records of Spruce, its Affiliate or its Sublicensee, maintained in accordance with GAAP consistently applied. Spruce further agrees in determining such amounts, it will use its then current standard procedures and methodology, including its then current standard exchange rate methodology, for the translation of foreign currency sales into U.S. Dollars or, in the case of Spruce's Affiliates and Sublicensees, such similar methodology, consistently applied.

Sales between or among [***] shall be excluded from the computation of Net Sales, but the first sale thereafter by Spruce, its Affiliate or Sublicensee to a Third Party that is not a Sublicensee shall be included in the computation of Net Sales.

In the event that the Licensed Product is a Combination, the Net Sales of the Licensed Product, for the purposes of determining royalty payments, shall be determined by multiplying the Net Sales of the Combination (as defined in the standard Net Sales definition) by the fraction, [***] where A is [***], and B is [***].

In the event that the weighted average sale price of the Licensed Compound can be determined but the weighted average sale price of the Other Product(s) cannot be determined, Net Sales of the Licensed Product, for purposes of determining royalty payments, shall be calculated by multiplying the Net Sales of the Combination (as defined in the standard Net Sales definition) by the fraction [***] where A is [***] and C is [***].

In the event that the weighted average sale price of the Other Product(s) can be determined but the weighted average sale price of the Licensed Compound cannot be determined, Net Sales of the Licensed Product, for purposes of determining royalty payments shall be calculated by multiplying the Net Sales of the Combination (as defined in the standard Net Sales definition) by the following formula: [***] where B is [***] and C is [***].

In the event that the weighted average sale price of both the Licensed Compound and the Other Product(s) in the Combination cannot be determined, the Net Sales of the Licensed Product, for purposes of determining royalty payments, shall be deemed to be equal to the lesser of (A) [***] or (B) [***] by the fraction, [***] where D is [***].

The weighted average sale price for a Licensed Product or Other Product(s), shall be calculated [***] each [***], on a country-by-country basis and such price shall be used with respect to the relevant country during all applicable royalty reporting periods for the entire following [***]. When determining the weighted average sale price of a Licensed Product or Other Product(s), the weighted average sale price shall be calculated by dividing [***] by [***]. In the initial [***], a forecasted weighted average sale price will be used for the Licensed Product or Other Product(s). Any over or under payment due to a difference between forecasted and actual weighted average sale prices will be paid or credited in the first royalty payment of the following [***].

1.31 "**Patent(s)**" means all patents and patent applications in any country or supranational jurisdiction, including any provisionals, substitutions, divisions, continuations, continuations-in-part, reissues, renewals, registrations, confirmations, reexaminations, extensions, any other pre-or post-grant forms of any of the foregoing, any confirmation patent or registration patent or patent of addition, utility models, patent term extensions, supplementary protection certificates and supplemental protection certificates or requests for continued examinations, foreign counterparts and the like.

1.32 "**Patent Expenses**" means all out-of-pocket costs and expenses (including attorney's fee, disbursements to agents in foreign jurisdictions, and government filing fees) incurred by Lilly to prepare, file, prosecute and maintain Licensed Patents.

1.33 "**Patent Prosecution**" means, with respect to a Patent, (a) preparing, filing and prosecuting applications (of all types) for such Patent, (b) paying filing, issuance and maintenance fees relating to such Patent, (c) managing and conducting any interference, opposition, invalidation, re-issue, reexamination, revocation, nullification, post-grant review, *inter partes* review, derivation proceeding, cancellation proceeding or other similar administrative proceeding or administrative appeal thereof with respect to such Patent, and (d) settling any interference, opposition, revocation, nullification or cancellation proceeding.

1.34 "**Regulatory Applications**" means any and all applications that are necessary and appropriate to obtain a Regulatory Approval, including, without limitation, all required documents, data and information concerning, filed or required to be filed or, otherwise submitted by Lilly or any of its Affiliates or licensees to a Regulatory Authority.

1.35 "**Regulatory Approval**" means all approvals from the relevant Regulatory Authority to market and sell a Licensed Product (or for purposes of Articles 1.12 or 4.5(b), a pharmaceutical product) in any country (including all applicable pricing and reimbursement approvals), including, in the United States, approval of a New Drug Application ("**NDA**").

1.36 "**Regulatory Authority**" means any applicable government regulatory authority involved in granting approvals for the conduct of clinical trials or the manufacturing, marketing, sale, reimbursement or pricing of a Licensed Product in a country, including, in the United States, the FDA.

1.37 "**Related Party**" means, with respect to a Party, its Affiliates and Sublicensees.

1.38 "**Specifications**" means the specifications set forth on Exhibit D.

1.39 "**Sublicense Agreement**" means any agreement entered into by Spruce with a Sublicensee.

1.40 "**Sublicensee**" means any Third Party to which Spruce or a Sublicensee grants a sublicense of the rights granted to Spruce under the Licensed Patents or Licensed Know-How.

1.41 "**Third Party**" means an entity other than (a) Lilly and its Affiliates, and (b) Spruce and its Affiliates.

1.42 "**United States**" or "**US**" means the United States of America and its territories and possessions, including without limitation the Commonwealth of Puerto Rico and the U.S. Virgin Islands.

1.43 "**Valid Claim**" means, with respect to a country, a claim of an issued and unexpired Patent included within the Licensed Patents in such country which has not been revoked or held unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction, which decision is not appealable or is not appealed within the time allowed for appeal, and has not been abandoned, disclaimed or admitted to be invalid or unenforceable through reissue, disclaimer or otherwise in such country.

2. LICENSES

2.1 License to Spruce

Lilly, on behalf of itself and its Affiliates, hereby grants to Spruce an exclusive, worldwide, royalty bearing license, with the right to grant sublicenses (subject to Article 2.2), under the Licensed Patents and Licensed Know-How to research, Develop, Commercialize, make, have made, use, sell, offer to sell, and import Licensed Compounds and Licensed Products in the Field. Lilly retains rights under Licensed Patents and Licensed Know-How for internal research purposes.

2.2 **Sublicenses**

The rights and licenses granted in Article 2.1 include the right to grant sublicenses, directly or through multiple tiers to Affiliates or Third Parties provided that the terms of any Sublicense Agreements shall, in general, be subject in applicable respects to the provisions contained in this Agreement. Spruce shall notify Lilly of the identity of any Sublicensee promptly on execution of the applicable Sublicense Agreement, and subject to removing any confidential information set forth in such Sublicense Agreement, Spruce shall forward to Lilly a copy of any Sublicense Agreement promptly upon execution of the parties thereto and in no event shall delivery of a Sublicense Agreement within [***] after execution thereof be considered not to be prompt.

Spruce shall have the right to retain a Third Party contractor to perform any activity in connection with Spruce's exercise of any of its rights granted under Article 2.1, where such activity is to be performed at the direction and control and for the sole benefit of Spruce or its Affiliates. Such retention of the Third Party contractor is not a sublicense within the meaning of this Article 2.2 but is considered an activity of Spruce under the license granted under Article 2.1.

2.3 **Regulatory Interactions**

Spruce, its Affiliates or Sublicensees, or its or their designees, will have the right to conduct, and, to the extent consistent with Article 2.4, will be responsible for, all regulatory activities and interactions, at their cost, for the Licensed Products, and will own the IND(s) and any future Regulatory Application(s) and Regulatory Approval(s) for the Licensed Products globally. Spruce, its Affiliates or Sublicensees, or its or their designees, will have the right to, and, to the extent consistent with Article 2.4, shall be responsible to, oversee, monitor and manage all regulatory interactions, communications and filings with, and submissions to Regulatory Authorities with respect to the Licensed Product(s). Spruce, its Affiliates or Sublicensees, or its or their designees, have final decision making authority regarding all regulatory activities with respect to the Licensed Product(s), including the regulatory and labeling strategy and the content of submissions.

2.4 **Diligence**

Spruce, itself or through or with its Affiliates or Sublicensees, shall use Commercially Reasonable Efforts to Develop and Commercialize a Licensed Product in the Field.

3. **TECHNOLOGY TRANSFER**

3.1 **Transfer of Licensed Know-How and Clinical Materials**

Promptly after the Effective Date, but in any event within [***] after the Effective Date, (a) Lilly will transfer to Spruce the Licensed Know-How, and other information in Lilly's or any of its Affiliates' possession or control as of the Effective Date that is reasonably necessary for Spruce to Develop, manufacture or Commercialize the Licensed Product, and (b) Lilly will transfer to Spruce the Clinical Materials, and all of the Lead Compound and Licensed Product, in Lilly's

or any of its Affiliates' possession or control as of the Effective Date. The items shall include those listed on Exhibit B entitled "Transfer of Material and Information". Such Licensed Know-How, information, Lead Compound, Clinical Materials, Licensed Product and materials are to be provided "as is". All such transfers of clinical data, or documents including clinical data, will be done in a secure manner using either encrypted media or encrypted transfer technology, or, if paper, utilizing secure courier or tracked delivery processes, as agreed to by the Parties.

3.2 **Transfer and Assignment of Regulatory Applications**

Promptly after the Effective Date, but in any event within [***] after the Effective Date, Lilly will provide a copy to Spruce of any Regulatory Applications, including without limitation INDs, for the Development of the Lead Compound as a single agent or a combination therapy in the Field. Lilly may redact information in Regulatory Applications that relates solely to proprietary agents other than the Lead Compound that are combined with the Lead Compound in Licensed Products. Lilly hereby grants to Spruce, its Affiliates and Sublicensees, the right to reference data and information contained in any Lilly's regulatory filings relating solely to Licensed Compounds to the extent useful or necessary in connection with Spruce's regulatory filings, Regulatory Applications, and Regulatory Approvals relating Licensed Compounds and Licensed Products under this Agreement.

3.3 **Technology Transfer Assistance**

Lilly will provide up to [***] of such consultation or other technical assistance without charge to Spruce, as Spruce may reasonably request for Spruce to assume the manufacture, Development, and Commercialization of the Licensed Product. Lilly will perform such consultation from [***] for up to [***] after the Effective Date ("**Technology Transfer Period**"). After the expiration of such period, if Spruce has reasonable questions with respect to technical assistance relating to Lilly's prior work on the Licensed Compounds, Lilly will use good faith efforts to have employees or representatives, if any are available, of Lilly with knowledge relevant to the applicable question respond to such questions, provided that such employees' and or representatives' time in responding to such questions shall not be required to exceed [***] per [***] for up to [***] following the Technology Transfer Period.

4. **PAYMENTS**

4.1 **Upfront Payments**

In partial consideration for the exclusive license rights granted by Lilly to Spruce hereunder, Spruce will pay Lilly seven hundred and fifty thousand dollars ($750,000.00) within [***] of the Effective Date.

4.2 **Milestone Payments**

Within [***] of Spruce its Affiliate or Sublicensee successfully achieving the following milestones for a Licensed Product, Spruce will make the following non-refundable payments to Lilly. For clarification, each milestone will be payable only [***] and all amounts are in U.S. dollars. The milestones will remain unchanged regardless of whether or not the Licensed Product is a stand-alone product or Combination.

Milestone for Licensed Product	Milestone Payment
[***]	[***]
[***]	[***]
Total Milestones	**[***]**

4.3 **Royalties**

Spruce will pay Lilly a tiered royalty on the Calendar Year, worldwide Net Sales of Licensed Products in the Field as follows:

Portion of Calendar Year Worldwide Net Sales	Royalty rate applicable to such portion
[***]	[***]%
[***]	[***]%
[***]	[***]%
[***]	[***]%
[***]	[***]%

4.4 **Royalty Payments**

Royalty obligations in respect to Articles 4.3 shall commence, on a country-by-country basis, on the date of the First Commercial Sale of Licensed Product in such country, and expire, on a country-by-country basis, on the latest of the following dates (the applicable, "**Royalty Term**"):

(a) the tenth (10th) anniversary of the date of First Commercial Sale of the Licensed Product in such country;

(b) the expiration in such country of the last-to-expire Licensed Patent having a Valid Claim covering the manufacture, use or sale of the Licensed Product as Commercialized in such country; and

(c) the expiration of any Regulatory or Data Exclusivity Period for the Licensed Product in such country.

Following the expiration of the Royalty Term with respect to a Licensed Product in a country, the licenses granted to Spruce with respect to such country shall become fully paid-up, royalty-free, perpetual and irrevocable.

4.5 **Royalty Reductions**

(a) Upon [***], the royalty rates payable on Net Sales of Licensed Products containing such Licensed Compound in such country shall be reduced by [***] for the remainder of the Royalty Term in such country.

(b) Any royalty due under Article 4.3, as reduced pursuant to Article 4.5(a), with respect to a country, shall be permanently reduced by [***] for the remainder of the applicable Royalty Term beginning in any Calendar Quarter that a generic or biosimilar version of a Licensed Product receives Regulatory Approval in such country or is sold in such country and achieves market penetration exceeding [***].

(c) If Spruce or any of its Related Parties (i) determines in good faith that it is reasonably necessary to obtain a license or other right from a Third Party under any Patent with one or more claims covering any Licensed Product or Licensed Compound, or the composition of matter, method of use or manufacture thereof, or under any Know-How necessary to research, Develop, use, Manufacture or Commercialize a Licensed Product or Licensed Compound in the Field in a country, and to pay a royalty or other consideration with respect thereto (including in connection with the settlement of a patent infringement claim), or (ii) is subject to a final court or other binding order or ruling requiring any payment to a Third Party under any Patent with one or more claims covering any Licensed Product or Licensed Compound, or the composition of matter, method of use or manufacture thereof, or under any Know-How necessary to research, Develop, use, Manufacture or Commercialize a Licensed Product or Licensed Compound in the Field in a country, then the amount of the royalty payments under Article 4.3, as reduced pursuant to Articles 4.5(a) or 4.5(b), with respect to Net Sales for such Licensed Product or Licensed Compound in such country shall be reduced by [***] of the amount payable by Spruce or any of its Related Parties to such Third Party (the "**Third Party IP Payments**"); however, in no case shall the royalty percentage on the Net Sales of Licensed Product be reduced more than [***].

4.6 **Reports; Payment of Royalty**

Spruce will keep and maintain (and to the extent applicable, will cause its Affiliates and Sublicensees to keep and maintain) complete and accurate records and books of account in such form and detail as is necessary for the determination of the royalty amounts payable by Spruce (on behalf of itself and its Affiliates and Sublicensees) to Lilly under this Agreement and for the purposes of this Agreement. Such records need only be kept and maintained for up to [***] after the end of any [***]. Spruce shall include in each sublicense granted by it pursuant to this Agreement a provision requiring the Sublicensee to keep and maintain records of sales made pursuant to such sublicense and to grant access to such records by Spruce under this Agreement.

During the Term, following the [***], Spruce shall furnish to Lilly a [***] written report for the [***] showing the Net Sales of Licensed Products subject to royalty payments sold by Spruce and its Related Parties on a country-by-country basis and broken down between Spruce and any Sublicensees during the reporting period and the royalties payable under this Agreement. Reports shall be due on the [***] following the close of each [***]. Royalties shown to have accrued by each royalty report shall be due and payable on the date such royalty report is due. By [***] of each calendar year, Spruce shall provide Lilly with an estimated sales forecast for the subsequent [***]. Spruce will mail such reports to the attention of: Eli Lilly and Company, Lilly Royalty Administration in Finance, Drop Code 1064, Lilly Corporate Center, Indianapolis, Indiana 46285.

4.7 **Financial Audits**

Upon the written request of Lilly and not more than [***] in each Calendar Year, Spruce shall permit an independent certified public accounting firm of nationally recognized standing selected by Lilly and reasonably acceptable to Spruce, at Lilly's expense, to have access during normal business hours, on at least [***] prior written notice, to such of the records of Spruce as may be reasonably necessary to verify the accuracy of the royalty reports hereunder for any Calendar Year ending not more than [***] prior to the date of such request. Spruce may require

such accounting firm to sign a reasonable confidentiality agreement with Spruce. Any given period may not be audited more than [***]. At Spruce's request, Lilly may consider in good faith, at its sole discretion and choice, the use of Spruce's then current external auditor to perform such audit. The accounting firm shall disclose to Lilly and Spruce only whether the royalty reports are correct or incorrect and the specific details concerning any discrepancies. No other information shall be provided to Lilly. This right to audit shall remain in effect throughout the Term and for a period of [***] after the Term.

If such accounting firm identifies a discrepancy made during such period, Spruce shall pay Lilly the amount of the discrepancy within [***] of the date Lilly delivers to Spruce such accounting firm's written report so concluding, or as otherwise agreed upon by the Parties. The fees charged by such accounting firm shall be paid by Lilly unless the underpayment exceeded the greater of A) [***] of the amount owed by Spruce to Lilly for such Calendar Year or B) [***], in which case, the accounting firm's fee to conduct such audit shall be borne by Spruce. Spruce shall pay interest on any underpayment as the rate set forth in Article 4.9.

Spruce shall include in each sublicense granted by it pursuant to this Agreement a provision requiring the Sublicensee to allow Spruce's independent nationally recognized certified public accounting firm to have access during normal business hours, on at least [***] prior written notice, to such of the records of the Sublicensee as may be reasonable necessary to verify the accuracy of the royalty reports hereunder for any Calendar Year ending not more than [***] prior to the date of such request. At Lilly's request, Spruce shall initiate an audit of any Sublicensee with an independent nationally recognized certified public accounting firm, acceptable to Lilly, at Spruce's expense. Prior to initiating any such audit, Spruce shall submit the accounting firms Sublicensee planned audit program to Lilly for review and approval. Lilly shall treat all financial information subject to review as Spruce's Confidential Information in accordance with the confidentiality and non-use provisions of this Agreement, and shall cause its accounting firms to enter into an acceptable confidentiality agreement with Spruce, its Affiliate or Sublicensee, as applicable, obligating them to retain all such information in confidence pursuant to such confidentiality agreement.

4.8 **Payment Method**

All payments to be made by Spruce to Lilly under this Agreement shall be made in United States dollars by bank wire transfer in immediately available funds to a bank account designated in writing by Lilly.

4.9 **Late Payment**

All late payments under the Agreement shall bear interest at the rate of [***], plus [***], or, if lower, [***], until the date such payment is made.

4.10 **Tax Withholding**

If laws, rules or regulations require Spruce or any Related Party to withhold income taxes or other taxes imposed upon payments due hereunder, Spruce or such Related Party shall make such withholding payments as required and subtract such withholding payments from the payments due. Spruce shall, or shall require its Related Party to, submit any original receipts or

other appropriate proof of payment of the withholding taxes to Lilly within [***] of such withholding payment to allow Lilly to document such tax withholdings for purposes of claiming foreign tax credits and similar benefits and shall cooperate with reasonable requests of Lilly (without acting to the detriment of Spruce or any Related Party) to the extent necessary for Lilly obtaining such credits and benefits.

4.11 **Blocked Payment**

If by Applicable Law or fiscal policy of a particular country, conversion into U.S. dollars or transfer of funds of a convertible currency to the United States prevents the prompt remittance of any milestones or royalty payments with respect to Net Sales in such country, payments will be made through such lawful means or methods as Lilly may determine.

5. **CONFIDENTIALITY; PUBLICATION**

5.1 **Nondisclosure Obligation**

Except as provided in this Article 5.1, all Confidential Information disclosed by the Disclosing Party to the Receiving Party hereunder shall be maintained in confidence by the Receiving Party and shall not be disclosed to any Third Party or used for any purpose except as set forth herein without the prior written consent of the Disclosing Party, until [***] following the Term of this Agreement.

Each Receiving Party may disclose Confidential Information of the Disclosing Party, without such Disclosing Party's prior written consent, to its Affiliates and its and its Affiliates' directors, employees, agents, consultants, Sublicensees, subcontractors, suppliers and other persons or entities who: (a) need to know such Confidential Information to assist the Receiving Party in fulfilling its obligations or exercising its rights hereunder; and (b) are bound by written confidentiality and non-use obligations consistent with those the Receiving Party uses to protect its own similar Confidential Information.

Each Receiving Party shall use reasonable efforts to promptly disclose to the Disclosing Party any material breach of this provision known by the Receiving Party to have been breached by it, or its Affiliates, or its or their directors, officers, employees, agents, consultants, Sublicensees, subcontractors, suppliers, or other persons or entities permitted hereunder.

Each Receiving Party may also disclose the Confidential Information of the Disclosing Party, without such Disclosing Party's prior written consent, [***]. Except where such disclosure is necessary to comply with securities or tax laws, regulations or guidance, the Receiving Party disclosing such Confidential Information shall provide prior notice of such intended disclosure to the Disclosing Party and cooperate with the Disclosing Party and take reasonable actions to preserve the confidentiality of such Confidential Information, such as requesting confidential treatment, as applicable. In addition, Spruce and its Related Parties may also disclose Lilly's Confidential Information, without Lilly's prior written consent, (a) [***], (b) [***], and (c) [***]. Each Receiving Party may also disclose the Confidential Information of the Disclosing Party, without such Disclosing Party's prior written consent, [***].

Each Receiving Party may also disclose the Confidential Information of the Disclosing Party, without such Disclosing Party's prior written consent, [***].

5.2 **Publicity**

Spruce and its Related Parties may, directly or through others, publish or present on any results or data related to the use, Development, manufacture or Commercialization of any Licensed Product or Licensed Compound.

6. REPRESENTATIONS AND WARRANTIES

6.1 Representations and Warranties of Spruce

Spruce represents and warrants to Lilly that, as of the Effective Date:

(a) it has the full right, power and authority to enter into this Agreement, and its execution of this Agreement, the fulfillment of its obligations and performance of its activities hereunder do not conflict with, violate, or breach or constitute a default under any material contractual obligation or court or administrative order by which Spruce is bound;

(b) all necessary consents, approvals and authorizations of all government authorities and other persons required to be obtained by Spruce as of the Effective Date, as applicable, in connection with the execution, delivery and performance of this Agreement have been obtained;

(c) that it will conduct all of its activities under this Agreement in compliance with all Applicable Laws and will only use Key-Coded Data provided to it by Lilly in accordance with the purposes set forth in this Agreement; for purposes of this Section 6.1(c), "**Key-Coded Data**" means data that has the identity of the individual data subjects replaced with a unique subject identification code (that is not derived from information related to the individual data subject) and do not carry such direct personal identifiers as name, address, or national health number, where such coding restricts identification of data subjects' personal information to specific individuals involved in the research project, such as clinical investigators, while still allowing for the addition of further research information as the study proceeds, clinical monitoring, and research oversight, and the ability to de-code data and re-identify data subjects permits auditing by drug regulatory authorities in order for them to verify the source and quality of safety and efficacy data collected during clinical trials and subsequently used in an application for a license to market a medicine; and

(d) neither it nor any of its Affiliates has been debarred or is subject to debarment.

6.2 Representations and Warranties of Lilly

Lilly represents and warrants to Spruce that, as of the Effective Date:

(a) it has the full right, power and authority to enter into this Agreement, to grant the rights and licenses granted under Articles 2 and 3, and its execution of this Agreement,

the fulfillment of its obligations and performance of its activities hereunder do not conflict with, violate, or breach or constitute a default under any material contractual obligation or court or administrative order by which Lilly is bound;

(b) to the knowledge of Lilly, there are no legal claims, judgments or settlements against or owed by Lilly or any of its Affiliates, threatened or pending legal claims or litigation, in each case relating to the Licensed Patents;

(c) all necessary consents, approvals and authorizations of all government authorities and other persons required to be obtained by Lilly as of the Effective Date in connection with the execution, delivery and performance of this Agreement have been obtained;

(d) it is the owner or exclusive licensee of or otherwise Controls the right, title and interest in and to the Licensed Patents and related Licensed Know-How, and has the right to grant to Spruce the licenses that it purports to grant hereunder and has not granted any Third Party rights that would interfere or be inconsistent with Spruce's rights hereunder;

(e) the Licensed Patents and Licensed Know-How are not subject to any existing royalty or other payment obligations to any Third Party;

(f) it has disclosed to Spruce a complete and accurate record of all material information and data relating to the results of all pre-clinical and clinical studies on Licensed Products or the Licensed Compound, conducted by or on behalf of Lilly or any of its Affiliates or otherwise known to Lilly, including, without limitation, the status and interim results of all ongoing clinical and preclinical studies, and the clinical development and Regulatory Application and Regulatory Approval activities undertaken to date, and all such information and data is complete and accurate in all material respects;

(g) neither it nor any of its Affiliates has been debarred or is subject to debarment;

(h) it has the authority to bind its Affiliates to the terms of this Agreement, as applicable, and to grant the rights and licenses granted on behalf of its Affiliates as set forth herein;

(i) all documents required to be filed and all payments required to be made in order to prosecute and maintain each Patent in the Licensed Patents have been filed or made, as the case may be, in a timely manner, and no action has been taken that would constitute waiver, abandonment or any similar relinquishment of such rights;

(j) the Licensed Patents constitute all Patents owned by or licensed to Lilly or any of its Affiliates that contain one or more claims covering any Licensed Product or Licensed Compound, or the composition of matter, method of use or manufacture thereof;

(k) neither Lilly nor any of its Affiliates is or has been a party to any agreement with any U.S. Governmental Authority pursuant to which any U.S. Governmental Authority provided funding for the Development of any Licensed Compound or any Licensed Product, and the inventions claimed or covered by the Existing Patents are not a "subject invention" as that term is described in 35 U.S.C. Section 201(f); and

(l) neither Lilly nor any of its Affiliates, nor any of its or their respective officers, employees, or agents has made an untrue statement of material fact or fraudulent statement to the FDA or any other Regulatory Authority with respect to the Development of any Licensed Compound or Licensed Product, failed to disclose a material fact required to be disclosed to the FDA or any other Regulatory Authority with respect to the Development of any Licensed Compound or any Licensed Product, or committed an act, made a statement, or failed to make a statement with respect to the Development of any Licensed Compound or Licensed Product that could reasonably be expected to provide a basis for the FDA to invoke its policy respecting "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities", set forth in 56 Fed. Reg. 46191 (September 10, 1991) and any amendments thereto or any analogous laws or policies in any other country.

6.3 **Covenants**.

Each Party shall inform the other Party in writing immediately upon learning that it or any person or entity who has performed activities with respect to a Licensed Compound or a Licensed Product prior to the Effective Date is debarred or is the subject of a conviction described in Section 306 of the United States Federal Food, Drug, and Cosmetic Act, or upon learning that any action is pending or threatened relating to the debarment or conviction of such Party or any person or entity used in any capacity by such Party or any of its Affiliates in connection with the Development or Commercialization of the Licensed Compounds or Licensed Products.

6.4 **No Other Representations or Warranties**

EXCEPT AS EXPRESSLY STATED IN THIS AGREEMENT, NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR NON-MISAPPROPRIATION OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS, ARE MADE OR GIVEN BY OR ON BEHALF OF A PARTY AND ALL SUCH OTHER REPRESENTATIONS AND WARRANTIES, WHETHER ARISING BY OPERATION OF LAW OR OTHERWISE, ARE HEREBY EXPRESSLY EXCLUDED.

7. INDEMNIFICATION

7.1 **By Lilly**

Lilly agrees to indemnify and hold harmless Spruce, its Affiliates, and their respective directors, officers, employees and agents (individually and collectively, the "**Spruce Indemnitee(s)**") from and against all losses, liabilities, damages and expenses (including reasonable attorneys' fees and costs) incurred in connection with any claims, demands, actions or other proceedings by any Third Party (or, with respect to a breach of Article 6.2(h), an Affiliate of Lilly) (individually and collectively, "**Losses**") to the extent arising from (a) the negligence, illegal conduct or willful misconduct of Lilly, (b) the use, Development or Commercialization of any Licensed Compound or any Licensed Product by or on behalf of Lilly or any of the Lilly Indemnitees or any licensee thereof, or (c) or Lilly's material breach of this Agreement, except to the extent such Losses described in any of clause (a), (b) or (c) arise out of any of Spruce Indemnitee's negligence, illegal conduct or willful misconduct or breach of this Agreement.

7.2 **By Spruce**

Spruce agrees to indemnify and hold harmless Lilly, its Affiliates, and their respective directors, officers, employees and agents (individually and collectively, the "**Lilly Indemnitee(s)**") from and against all Losses first arising after the Effective Date to the extent arising from (a) the Development, manufacture, Commercialization, use or sale of Licensed Products by Spruce, or any of its Related Parties, (b) the use of Licensed Products manufactured or sold by Spruce or any of its Related Parties by any purchasers thereof, including without limitation any product liability claim, (c) the negligence, illegal conduct or willful misconduct of Spruce in the performance of this Agreement, or (d) Spruce's material breach of this Agreement, except to the extent such Losses described in any of clause (a), (b), (c) or (d) arise out of any of Lilly Indemnitee's negligence, illegal conduct or willful misconduct or breach of this Agreement or as otherwise provided in Article 7.1(b).

7.3 **Defined Indemnification Terms**

Either the Lilly Indemnitee or the Spruce Indemnitee shall be an "**Indemnitee**" for the purpose of this Article 7, and the Party that is obligated to indemnify the Indemnitee under Article 7.1 or Article 7.2 shall be the "**Indemnifying Party**".

7.4 **Defense**

If any such claims, demands, actions or other proceedings are made, the Indemnitee shall be defended at the Indemnifying Party's sole expense by counsel selected by Indemnifying Party and reasonably acceptable to the Indemnitee, provided that the Indemnitee may, at its own expense, also be represented by counsel of its own choosing. The Indemnifying Party shall have the sole right to control the defense of any such claim, demand, action or other proceeding subject to the terms of this Article 7.

7.5 **Settlement**

The Indemnifying Party may settle any such claim, demand, action or other proceeding or otherwise consent to an adverse judgment (a) with prior written notice to the Indemnitee but without the consent of the Indemnitee where the only liability to the Indemnitee is the payment of money and the Indemnifying Party makes such payment, or (b) in all other cases, only with the prior written consent of the Indemnitee, such consent not to be unreasonably withheld.

7.6 **Notice**

The Indemnitee shall notify the Indemnifying Party promptly of any claim, demand, action or other proceeding under Article 7.1 or Article 7.2 and shall reasonably cooperate with all reasonable requests of the Indemnifying Party with respect thereto.

7.7 **Permission by Indemnifying Party**

The Indemnitee may not settle any such claim, demand, action or other proceeding or otherwise consent to an adverse judgment in any such action or other proceeding or make any admission as to liability or fault without the express written permission of the Indemnifying Party.

7.8 **Limitation of Liability**

NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, PUNITIVE, OR INDIRECT DAMAGES, OR LOST PROFITS, ARISING FROM OR RELATING TO ANY BREACH OF THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, NOTHING IN THIS ARTICLE 7.8 IS INTENDED TO OR SHALL LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF ANY PARTY UNDER ARTICLE 7, OR DAMAGES AVAILABLE FOR A PARTY'S BREACH OF CONFIDENTIALITY OBLIGATIONS IN ARTICLE 5.

8. **INVENTIONS; PATENT PROVISIONS**

8.1 **Patent Filing, Prosecution and Maintenance**

Spruce shall have sole-decision-making authority for all actions, at its cost, relating to Licensed Patents, including without limitation Patent Prosecution, defense, enforcement, listing in regulatory publications (such as the FDA Orange Book and any foreign equivalent) and patent term extension. Lilly and Spruce shall jointly in good faith establish an overall strategy for the actions described above in this Article 8.1, including the filing, prosecution and maintenance of the Licensed Patents. The primary objective of such strategy shall be to provide patent exclusivity for the Licensed Products and uses thereof in the major pharmaceutical markets and other markets with respect to which Spruce or any of its Related Parties are Developing or Commercializing the Licensed Products and to protect the investments made and to be made by Spruce and its Related Parties in the Development and Commercialization of the Licensed Products where it is economically reasonable. Spruce shall keep Lilly informed of the status of all material actions taken with respect to the Licensed Patents, and in particular, shall (a) regularly and promptly provide Lilly with copies of all Licensed Patents and other material submissions and correspondence with government agencies concerning such Licensed Patents, in sufficient time to allow for review and comment by Lilly, (b) provide Lilly and its patent counsel with an opportunity to consult with Spruce and its patent counsel regarding the filing and contents of any such application, amendment, submission or response, and the advice and suggestions of Lilly and its patent counsel shall be taken into consideration in good faith by Spruce and its patent counsel, and (c) not settle, without Lilly's prior written consent (not to be unreasonably withheld), any proceeding with respect to a Licensed Patent in a manner that will materially adversely affect any of the Licensed Patents or Licensed Products.

8.2 **Patent and Trademark Oppositions**

Spruce shall, in its sole discretion and at its cost, decide whether and how to participate in Patent oppositions and other activities intended to invalidate Third Party Patents or trademarks.

8.3 **Abandoned Patents**

Spruce may in its sole discretion elect to discontinue Patent Prosecution of a Licensed Patent in any country, on a Patent-by-Patent basis. Spruce shall give [***] notice, of at least [***] prior to the deadline for the next filing, office action or payment with the relevant patent office, to Lilly if it elects to discontinue Patent Prosecution or any other action described in Article 8.1, or declines to pay costs for the filing, prosecution or maintenance, of a Licensed Patent in any country. Lilly will have the option, but not the obligation to resume control of such patent prosecution and maintenance. If Lilly elects to exercise its option to maintain the patent, Spruce will reimburse Lilly for the reasonable cost of prosecuting and maintaining such patent. If Lilly elects not to exercise its option to maintain the patent, Spruce shall pay royalties as under Article 4.3 during any Data or Regulatory Exclusivity Period and then [***] of the royalty under Article 4.3, thereafter until what would have been the expiration of the patent plus any patent term extension that would have been otherwise allowable. If Lilly provides written notice to Spruce within such [***] period that Lilly has decided to file, prosecute or maintain, or otherwise conduct any such action with respect to, such Licensed Patent, Spruce shall promptly deliver to Lilly copies of all necessary files related to such Licensed Patent, shall take all actions and execute all documents reasonably necessary for Lilly to assume the right and responsibility to conduct all such Patent Prosecution and other actions with respect to such Licensed Patent, and shall, or shall require its Affiliate to, promptly assign such Licensed Patent to Lilly.

8.4 **Notice**

Each Party shall promptly provide written notice to the other Party reasonably detailing any known or alleged infringement of any Licensed Patent or if it receives notice by an ANDA applicant of a certification under 21 USC 355(b)(2)(a) or 355(j)(2)(A)(vii) with respect to any Licensed Patent.

8.5 **Enforcement of Intellectual Property Rights**

Spruce or any of its Related Parties shall have the first right to institute and direct legal proceedings against any Third Party believed to be infringing or misappropriating or otherwise violating a Licensed Patent or Licensed Know-How or Lilly's Confidential Information covering Licensed Compounds or Licensed Products, and to defend the Licensed Patents from any claim of invalidity or unenforceability in connection therewith. If Spruce or any of its Related Parties does not undertake efforts to abate such violation of intellectual property rights, including commencement of a lawsuit against the accused person if necessary, within [***] after receiving notice of such infringement of such Licensed Patent or violation of such Know-How or Confidential Information, then Lilly shall be entitled (but shall not be obligated) to take all actions reasonably necessary to abate such violation, including commencement of a lawsuit against the accused person if necessary; provided, however, Lilly shall consult in advance with Spruce regarding such action. The primary objective of any such patent enforcement action shall be to preserve exclusivity for the Licensed Product and uses thereof in the major pharmaceutical markets and other markets with respect to which Spruce or any of its Related Parties are Developing or Commercializing the Licensed Products. All amounts recovered from enforcement of any such rights by an enforcing Party relating to such intellectual property licensed under this Agreement shall be first used to [***], and any remainder of such recovery shall be [***]. The Parties shall keep each other informed of the status of and of their respective activities regarding any enforcement action pursuant to this Article 8.5.

8.6 **Cooperation in Enforcement Proceedings**

For any action by a Party pursuant to Article 8.5, in the event that such Party is unable to initiate or prosecute such action solely in its own name, the other Party or its Affiliates, as applicable, will join such action voluntarily and will execute all documents necessary for such Party to initiate, prosecute and maintain such action. If either Party initiates an enforcement action pursuant to Article 8.5, then, at such Party's request, the other Party shall cooperate to the extent reasonably necessary and at the first Party's sole expense for reasonable, out-of-pocket costs (except for the expenses of the non-controlling Party's counsel, if any). Upon the reasonable request of the Party instituting any such action, such other Party shall join the suit and can be represented in any such legal proceedings using counsel of its own choice at its own expense. Each Party shall, if possible, assert and not waive the joint defense privilege with respect to all communications between the Parties reasonably the subject thereof with respect to any such action.

8.7 **Defense**

(a) Each Party shall notify the other in writing of any allegations it receives from a Third Party that the manufacture, production, use, Development, Commercialization, sale or distribution of any Licensed Product or any technology or intellectual property licensed under this Agreement infringes the intellectual property rights of such Third Party. Such notice shall be provided promptly, but in no event after more than [***], following receipt of such allegations.

In the event that a Party receives notice that it or any of its Affiliates or Sublicensees have been individually named as a defendant in a legal proceeding by a Third Party alleging infringement of a Third Party's Patents or other intellectual property right as a result of the manufacture, production, use, Development, Commercialization, sale or distribution of Licensed Products or any technology or intellectual property licensed under this Agreement, such Party shall immediately notify the other Party in writing within [***] after the receipt of such notice. Such written notice shall include a copy of any summons or complaint (or the equivalent thereof) received regarding the foregoing. Each Party shall, if possible, assert and not waive the joint defense privilege with respect to all communications between the Parties reasonably the subject thereof with respect to such legal proceeding. In such event, the Parties shall use reasonable efforts to agree how best to mitigate or control the defense of any such legal proceeding; provided however, Spruce or any of its Affiliates or Sublicensees shall have the right to assume the primary responsibility for the conduct of the defense of any such claim at its expense. Lilly shall have the right, but not the obligation, to participate and be separately represented in any such suit at its sole option and at its own expense. Lilly shall reasonably cooperate with Spruce or any of its Affiliates or Sublicensees. If a Party or any of its Affiliates have been individually named as a defendant in a legal proceeding relating to the alleged infringement of a Third Party's Patents or other intellectual property right as a result of the manufacture, production, use, development, sale or distribution of Licensed Products, the other Party shall be allowed to join in such action, at its own expense.

(b) The Parties shall keep each other informed of the status of and of their respective activities regarding any infringement litigation initiated by a Third Party concerning the manufacture, production, use, Development, Commercialization sale or distribution of Licensed Products or settlement thereof; provided, however, that no settlement or consent judgment or other voluntary final disposition of a suit under this Article 8.7 may be undertaken by a Party without the consent of the other Party which consent shall not be unreasonably withheld or delayed.

9. TERM AND TERMINATION

9.1 Term and Expiration

This Agreement shall be effective as of the Effective Date and, unless terminated earlier pursuant to Articles 9.2, 9.3, 9.4 or 9.5, this Agreement shall continue in effect until the expiration of all payment obligations hereunder (the "**Term**").

9.2 Termination On Mutual Agreement

This Agreement may be terminated on mutual agreement of the Parties.

9.3 Unilateral Termination by Spruce

Spruce shall have the right to terminate this Agreement, in its entirety on a worldwide basis or with respect to any country(ies), in its sole discretion by giving sixty (60) days advance written notice to Lilly.

9.4 Termination for Cause

This Agreement may be terminated at any time during the Term upon written notice by a Party if the other Party is in material breach of its obligations under this Agreement and has not cured such breach within ninety (90) days after receiving written notice of the breach. The cure period shall be tolled pending resolution of any bona fide dispute between the Parties as to whether any such material breach has occurred.

9.5 Termination for Bankruptcy

Either Party will have the right to terminate this Agreement in the event of a general assignment for the benefit of creditors of the other Party, or if proceedings of a case are commenced in any court of competent jurisdiction by or against such other Party seeking (a) such other Party's reorganization, liquidation, dissolution, arrangement or winding up, or the composition or readjustment of its debts, (b) the appointment of a receiver or trustee for or over such other Party's property, or (c) similar relief in respect of such other Party under any law relating to bankruptcy, insolvency, reorganization, winding up or composition or adjustment of debt, and such proceedings shall continue undismissed, or an order with respect to the foregoing shall be entered and continue unabated, for a period of more than sixty (60) days.

9.6 Effect of Termination

(a) Upon termination of this Agreement pursuant to Article 9.2, 9.3, 9.4 or 9.5:

A. All rights and licenses granted by Lilly to Spruce hereunder shall terminate;

B. Spruce shall return to Lilly all Confidential Information of Lilly then in Spruce's possession except as necessary to exercise any licenses which are then irrevocable. If this Agreement is terminated by Spruce pursuant to Article 9.3 or by Lilly pursuant to Article 9.4 or 9.5, Spruce shall return to Lilly all Development and manufacturing data and records, including all patient data related to clinical trials or development activity owned by Spruce, and will transition or assign to Lilly all INDs, Regulatory Applications and Regulatory Authorizations for the Licensed Product owned by Spruce wherever located; and

C. All activities underway with respect to the Licensed Products at the time of termination shall terminate as soon as possible, except (i) for those activities pursuant to the licenses that are then irrevocable and (ii) that Spruce will continue to be responsible for any pre-clinical or clinical studies to the extent that Spruce's then current ethical guidelines would require Spruce to complete such studies. All costs of continuing such trials for ethical reasons or winding down activities shall continue to be borne by Spruce until completion of such activities. For the sake of clarity the costs of continuing trials for ethical reasons shall be the costs, if any, to continue treatment of current patients under treatment in the trial in accordance with Spruce's then-current ethical guidelines.

(b) If either Party has the right to terminate this Agreement under Article 9.4, it may at its sole option, elect either to (i) terminate this Agreement and pursue any legal or equitable remedy available to it or (ii) maintain the Agreement in effect and pursue any legal or equitable remedy available to it.

9.7 **Survival**

The following provisions shall survive the termination or expiration of this Agreement for any reason following the Effective Date: Articles 1, 4 (to the extent payments have accrued prior to termination), 5, 6.4, 7, 9.7, 10 and 11.3 through 11.15, inclusive.

10. **DISPUTE RESOLUTION**

10.1 **Disputes**

The Parties recognize that disputes as to certain matters may from time to time arise which relate to either Party's rights and obligations hereunder. It is the objective of the Parties to establish procedures to facilitate the resolution of such disputes in an expedient manner by mutual cooperation and without resort to litigation. To accomplish this objective, the Parties agree to follow the procedures set forth in Article 10.2 if and when such a dispute arises between the Parties.

10.2 **Mediation Procedures**

If any dispute, controversy or claim arises between the Parties that cannot be resolved the Parties agree to attempt to resolve such dispute, controversy or claim (except as to any issue relating to intellectual property) by non-binding mediation administered by the American Arbitration Association ("**AAA**") in accordance with its commercial mediation rules. Unless otherwise agreed by the Parties, the mediation shall be held in New York, New York and shall be attended by the Chief Executive Officer of Spruce or designee having decision authority for the disputed subject matter and the Chief Executive Officer of Lilly or designee having decision

authority for the disputed subject matter. The mediation shall be held on a mutually agreeable date which shall not be later than [***] following any Party's request for mediation. The fees of the mediator shall be shared equally by the Parties. Notwithstanding anything to the contrary herein, either Party may, without waiving any remedy under this Agreement, seek from any court having jurisdiction any injunctive or provisional relief necessary to protect the rights or property of such Party.

10.3 **Mediation Procedures**

If any dispute, controversy or claim arises between the Parties that cannot be resolved as set forth in Article 10.2, either Party may seek recourse in a court of competent jurisdiction.

11. MISCELLANEOUS

11.1 **Compliance with Anti-Corruption Laws.**

(a) In connection with this Agreement, each Party and each of its Affiliates has complied and will comply with all applicable local, national, and international laws, regulations, and industry codes dealing with government procurement, conflicts of interest, corruption or bribery, including, if applicable, the U.S. Foreign Corrupt Practices Act of 1977 ("**FCPA**"), as amended, and any laws enacted to implement the Organisation of Economic Cooperation and Development ("**OECD**") Convention on Combating Bribery of Foreign Officials in International Business Transactions.

(b) In connection with this Agreement, neither Party, nor any of its Affiliates, has made, offered, given, promised to give, or authorized, nor will make, offer, give, promise to give, or authorize, in a manner that violates Applicable Laws, any bribe, kickback, payment or transfer of anything of value, directly or indirectly, to any person or to any Government or Public Official for the purpose of: (i) improperly influencing any act or decision of the person or Government or Public Official; (ii) inducing the person or Government or Public Official to do or omit to do an act in violation of a lawful or otherwise required duty; (iii) securing any improper advantage; or (iv) inducing the person or Government or Public Official to improperly influence the act or decision of any organization, including any government or government instrumentality, in order to assist Spruce or Lilly in obtaining or retaining business.

11.2 **Force Majeure**

Neither Party shall be held liable to the other Party nor be deemed to have defaulted under or breached this Agreement for failure or delay in performing any obligation under this Agreement to the extent such failure or delay is caused by or results from causes beyond the reasonable control of the affected Party, including, but not limited to, embargoes, war, acts of war (whether war be declared or not), insurrections, riots, civil commotions, strikes, lockouts or other labor disturbances, fire, floods, or other acts of God, or acts, omissions or delays in acting by any Governmental Authority. The affected Party shall notify the other Party of such force majeure circumstances as soon as reasonably practical, and shall promptly undertake all reasonable efforts necessary to cure such force majeure circumstances.

11.3 **Assignment**

Neither Party may assign its rights and obligations under this Agreement without the prior written consent of the other Party, such consent not to unreasonably withheld, provided that either Party may assign its rights and obligations under this Agreement to (i) any of its Affiliates, (ii) as part of a sale to a Third Party of all or substantially all of its assets or all of its assets to which this Agreement relates, or (iii) as part of a merger with, sale of stock to, or other consolidation, amalgamation or reorganization. Subject to the foregoing, this Agreement shall inure to the benefit of and be binding on the Parties' successors and assigns. Any assignment or transfer in violation of the foregoing shall be null and void and wholly invalid, the assignee or transferee in any such assignment or transfer shall acquire no rights whatsoever, and the non-assigning non-transferring Party shall not recognize, nor shall it be required to recognize, such assignment or transfer.

11.4 **Severability**

If any one or more of the provisions contained in this Agreement is held invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby, unless the absence of the invalidated provision(s) adversely affects the substantive rights of the Parties. The Parties shall in such an instance use their best efforts to replace the invalid, illegal or unenforceable provision(s) with valid, legal and enforceable provision(s) which, insofar as practical, implement the purposes of this Agreement.

11.5 **Notices**

All notices which are required or permitted hereunder shall be in writing and sufficient if delivered personally, sent by facsimile (and promptly confirmed by personal delivery, registered or certified mail or overnight courier), sent by nationally-recognized overnight courier or sent by registered or certified mail, postage prepaid, return receipt requested, addressed as follows:

if to Spruce, to:	Spruce Biosciences, Inc. 548 Market St. Suite 74598 San Francisco, CA 94104 Attn: Chief Executive Officer
with copy to:	Latham & Watkins, LLP 140 Scott Drive Menlo Park, CA 94025-1008 Attn: Alan C. Mendelson, Esq.
If to Lilly, to:	Eli Lilly and Company Lilly Corporate Center Indianapolis, IN 46285 Attn: Office of Alliance Management Facsimile: (317) 433-8071

with copy to: Eli Lilly and Company Lilly
Corporate Center
Indianapolis, IN 46285
Attn: General Patent Counsel

Facsimile: (317) 433-3000

or to such other address as the Party to whom notice is to be given may have furnished to the other Party in writing in accordance herewith. Any such notice shall be deemed to have been given: (a) when delivered if personally delivered or sent by facsimile on a Business Day (provided that if given by facsimile, the transmitting Party received confirmation of complete transmission); (b) on the Business Day after dispatch if sent by nationally-recognized overnight courier; or (c) on the [***] Business Day following the date of mailing if sent by mail.

11.6 **Applicable Law**

This Agreement shall be governed by and construed in accordance with the laws of the State of New York without reference to any rules of conflict of laws.

11.7 **Entire Agreement; Amendments**

The Agreement contains the entire understanding of the Parties with respect to the rights and licenses granted hereunder. All express or implied agreements and understandings, either oral or written, with regard to the rights and licenses granted hereunder are superseded by the terms of this Agreement, including the [***]. The Agreement may be amended, or any term hereof modified, only by a written instrument duly executed by authorized representatives of both Parties.

11.8 **Headings**

The captions to the several Articles hereof are not a part of the Agreement, but are merely for convenience to assist in locating and reading the several Articles of this Agreement.

11.9 **Independent Contractors**

It is expressly agreed that Spruce and Lilly shall be independent contractors and that the relationship between the two Parties shall not constitute a partnership, joint venture or agency. Neither Spruce nor Lilly shall have the authority to make any statements, representations or commitments of any kind, or to take any action, which shall be binding on the other Party, without the prior written consent of the other Party.

11.10 **Waiver**

The waiver by either Party of any right hereunder or to claim a breach by the other Party resulting from the failure of such other Party to perform, or a breach by such other Party, shall not be deemed a waiver of any other right hereunder or with respect to any other breach or failure by such other Party whether of a similar nature or otherwise, except to the extent such waiver is set forth in a writing signed by the waiving Party.

11.11 **Cumulative Remedies**

Except as expressly set forth herein, no remedy referred to in this Agreement is intended to be exclusive, but each shall be cumulative and in addition to any other remedy referred to in this Agreement or otherwise available under law.

11.12 **Waiver of Rule of Construction**

Each Party has had the opportunity to consult with counsel in connection with the review, drafting and negotiation of this Agreement. Accordingly, the rule of construction that any ambiguity in this Agreement shall be construed against the drafting Party shall not apply.

11.13 **Construction**

Except where the context otherwise requires, wherever used, the singular will include the plural, the plural the singular, and the use of any gender will be applicable to all genders. The captions of this Agreement are for convenience of reference only and in no way define, describe, extend or limit the scope or intent of this Agreement or the intent of any provision contained in this Agreement. The term "including" as used herein means including, without limiting the generality of any description that precedes such term, and shall be deemed to be followed by the phrase "but not limited to," "without limitation" or words of similar import regardless of whether such words are actually written there (and drawing no implication from the actual inclusion of such phrase in some instances after the word "including" but not others). References to "Article", "Articles", "Exhibit" or "Exhibits" are references to the numbered Article(s) or lettered Exhibit(s) of this Agreement, unless expressly stated otherwise. Except where the context otherwise requires, (a) references to a particular law, rule or regulation mean such law, rule or regulation as in effect as of the relevant time, including all rules and regulations thereunder and any successor law, rule or regulation in effect as of the relevant time, and including the then-current amendments thereto; (b) the word "or" has the inclusive meaning that is typically associated with the phrase "and/or"; (c) whenever this Agreement refers to a number of days, such number will refer to calendar days unless Business Days are specified, and if a period of time is specified and dates from a given day or Business Day, or the day or Business Day of an act or event, it is to be calculated exclusive of that day or Business Day; (d) references to a particular person or entity include such person's or entity's successors and assigns to the extent not prohibited by this Agreement; (e) a capitalized term not defined herein but reflecting a different part of speech than a capitalized term which is defined herein shall be interpreted in a correlative manner; and (f) the words "hereof," "herein," "hereby" and derivative or similar words refer to this Agreement (including any Exhibits).

11.14 **Use of Third Parties**

It is understood that when Spruce engages any Third Party to manufacture, supply, distribute, promote, import or export any Licensed Product, that engagement may require a limited license or limited sublicense of rights obtained from Lilly under this Agreement. Notwithstanding any delegation of obligations under this Agreement by Spruce or its Affiliates or to a Third Party, whether related to manufacture of Licensed Product (marketed or investigational) or otherwise, Spruce shall remain primarily liable and responsible for the performance of all of its obligations under this Agreement and for causing such Affiliates or Third Parties to act in a manner consistent herewith, to the extent applicable. Any Party contracting with any Third Party shall not agree to any term that would make it unable to comply with its obligations under this Agreement.

11.15 **Counterparts**

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Each Party shall be entitled to rely on the delivery of executed facsimile copies of counterpart execution pages of this Agreement and such facsimile copies shall be legally effective to create a valid and binding agreement among the parties. Signatures provided by facsimile transmission or in Adobe™ Portable Document Format (PDF) sent by electronic mail shall be deemed to be original signatures.

Signature Page Follows.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives effective as of the last date executed below (the "**Effective Date**").

SPRUCE BIOSCIENCES, INC

By: */s/ Alexis R. Howerton*
Name: Alexis R. Howerton, PhD
Title: President and Chief Executive Officer
Date: May 2, 2016

ELI LILLY and COMPANY

By: */s/ Jan M. Lundberg*
Name: Jan M. Lundberg, Ph.D.
Title: EVP, Science and Technology and President, Lilly Research Laboratories
Date: April 29, 2016

EXHIBIT A:

Licensed Patents

[***]

Docket Number	Country	Application Number	Application Date	Patent Number	Grant Date	Sub Status	Sub Status Date
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EXHIBIT B:

Transfer of Material and Information

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EXHIBITC:

Structure of Lead Compound

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EXHIBIT D:

Specifications

The Specifications will be transferred with the due diligence contents; index items 4.15 and 4.16.

LOAN AND SECURITY AGREEMENT

THIS LOAN AND SECURITY AGREEMENT (this "**Agreement**") dated as of 9/23/2019 (the "**Effective Date**") between **SILICON VALLEY BANK**, a California corporation ("**Bank**"), and **SPRUCE BIOSCIENCES, INC**., a Delaware corporation ("**Borrower**"), provides the terms on which Bank shall lend to Borrower and Borrower shall repay Bank. The parties agree as follows:

1 ACCOUNTING AND OTHER TERMS

Accounting terms not defined in this Agreement shall be construed following GAAP. Calculations and determinations must be made following GAAP, except, in each case applicable hereunder, with respect to unaudited financial statements, for the absence of footnotes and subject to year-end adjustments. Capitalized terms not otherwise defined in this Agreement shall have the meanings set forth in Section 13. All other terms contained in this Agreement, unless otherwise indicated, shall have the meaning provided by the Code to the extent such terms are defined therein.

2 LOAN AND TERMS OF PAYMENT

2.1 Promise to Pay. Borrower hereby unconditionally promises to pay Bank the outstanding principal amount of all Credit Extensions and accrued and unpaid interest thereon as and when due in accordance with this Agreement.

2.1.1 Term Loans.

(a) Availability. Subject to the terms and conditions of this Agreement: (i) Bank agrees to lend to Borrower from time to time on or before the Term Loan Availability End Date, up to three (3) advances (each a "**Term Loan**" and collectively the "**Term Loans**") in an aggregate original principal amount not to exceed the Term Loan Amount; (ii) one (1) Term Loan (other than the Term Loans in the Second Tranche) in an original principal amount up to Two Million Five Hundred Thousand Dollars ($2,500,000) shall be available from the Effective Date through the Term Loan Availability End Date (the "**First Tranche**"); (iii) upon Borrower's request, up to two (2) Term Loans (other than the Term Loan in the First Tranche) in an aggregate original principal amount of up to Two Million Dollars ($2,000,000) shall be available through the Term Loan Availability End Date, but if, and only after, the Second Tranche Condition has occurred (the "**Second Tranche**"); and (iv) each Term Loan in the Second Tranche must be in a minimum original principal amount of One Million Dollars ($1,000,000). The "**Second Tranche Condition**" means Borrower has presented to Bank evidence satisfactory to Bank that: (i) Borrower has received regulatory guidance from the FDA and MEB sufficient for Borrower to initiate Phase lib studies, *and* (ii) Bank has had confirmatory calls with Borrower's key investors which are satisfactory to Bank. When repaid, the Term Loans may not be re-borrowed. Bank's obligation to lend hereunder shall terminate on the Term Loan Availability End Date.

(b) Repayment.

For the Term Loan in the First Tranche: (i) Borrower shall make monthly payments of interest only commencing on the first day of the month following the month in which its Funding Date occurs with respect to such Term Loan and continuing thereafter on the first day of each successive calendar month through March 31, 2020 (or June 30, 2020 if a Term Loan in the Second Tranche has been made), (ii) commencing on April 1, 2020 (or July 1, 2020 if a Term Loan in the Second Tranche has been made), and continuing thereafter on the first day of each successive calendar month through its Term Loan Maturity Date (each a "**Term Loan Payment Date**"), Borrower shall make the twenty-four (24) (or twenty-one (21), if a Term Loan in the Second Tranche has been made) monthly payments of equal principal, plus accrued interest, which would fully amortize such Term Loan, and (iii) all unpaid principal and accrued and unpaid interest on the Term Loan is due and payable in full on its Term Loan Maturity Date.

For each Term Loan in the Second Tranche: (i) Borrower shall make monthly payments of interest only commencing on the first day of the month following the month in which its Funding Date occurs with respect to such Term Loan and continuing thereafter on the first day of each successive calendar month through June 30, 2020, (ii) commencing on July 1, 2020, and continuing thereafter on the first day of each successive calendar month through its Term Loan Maturity Date (each a "**Term Loan Payment Date**"), Borrower shall make the twenty-one (21) monthly payments of equal principal, plus accrued interest, which would fully amortize such Term Loan, and (iii) all unpaid principal and accrued and unpaid interest on the Term Loan is due and payable in full on its Term Loan Maturity Date.

The Term Loans may only be prepaid in accordance with the provisions set forth below.

(c) Final Payment. On the Term Loan Maturity Date with respect to the Term Loans, Borrower shall pay, in addition to the outstanding principal, accrued and unpaid interest, and all other amounts due on such date with respect to the Term Loans, an amount equal to the Final Payment.

(d) Mandatory Prepayment upon an Acceleration. If the Term Loans are accelerated following the occurrence and during the continuance of an Event of Default, Borrower shall immediately pay to Bank an amount equal to the sum of: (i) all outstanding principal plus accrued interest thereon, (ii) the Final Payment, (iii) the Prepayment Fee, plus (iv) all other sums, if any, that shall have become due and payable, including interest at the Default Rate with respect to any past due amounts.

(e) Permitted Prepayment of Term Loans. Borrower shall have the option to prepay all, but not less than all, of the Term Loans advanced by Bank under this Agreement, provided Borrower (i) provides written notice to Bank of its election to prepay Term Loans at least five (5) Business Days prior to such prepayment, and (ii) pays, on the date of such prepayment (A) all outstanding principal plus accrued interest thereon, (B) the Final Payment, (C) the Prepayment Fee, plus (D) all other sums, if any, that shall have become due and payable, including interest at the Default Rate with respect to any past due amounts.

2.2 Intentionally Omitted.

2.3 Payment of Interest on the Credit Extensions.

(a) Interest Rate.

(i) Term Loans. Subject to Section 2.3(b), the principal amount outstanding under each Term Loan shall accrue interest, which interest shall be payable monthly in arrears, at a floating per annum rate equal to the greatest of: (i) one percent (1.00%) below the Prime Rate, (ii) four and one-quarter percent (4.25%), or (iii) one percent (1.00%) below the Prime Rate as determined on the Effective Date.

(b) Default Rate. Immediately upon the occurrence and during the continuance of an Event of Default, Obligations shall bear interest at a rate per annum which is four percentage points (4.0%) above the rate that is otherwise applicable thereto (the "**Default Rate**") ") unless Bank otherwise elects from time to time in its sole discretion to impose a smaller increase. Fees and expenses which are required to be paid by Borrower pursuant to the Loan Documents (including, without limitation, Bank Expenses) but are not paid when due shall bear interest until paid at a rate equal to the highest rate applicable to the Obligations. Payment or acceptance of the increased interest rate provided in this Section 2.3(b) is not a permitted alternative to timely payment and shall not constitute a waiver of any Event of Default or otherwise prejudice or limit any rights or remedies of Bank.

(c) Adjustment to Interest Rate. Changes to the interest rate of any Credit Extension based on changes to the Prime Rate shall be effective on the effective date of any change to the Prime Rate and to the extent of any such change.

(d) Payment; Interest Computation. Interest is payable monthly in arrears on the first calendar day of each month and shall be computed on the basis of a 360-day year for the actual number of days elapsed. In computing interest, (i) all payments received after 12:00 p.m. Pacific time on any day shall be deemed received at the opening of business on the next Business Day, and (ii) the date of the making of any Credit Extension shall be included and the date of payment shall be excluded; provided, however, that if any Credit Extension is repaid on the same day on which it is made, such day shall be included in computing interest on such Credit Extension.

2.4 Fees. Borrower shall pay to Bank:

(a) Final Payment. The Final Payment when due hereunder;

(b) Prepayment Fee. The Prepayment Fee, if and when due hereunder; and

(c) Bank Expenses. All Bank Expenses (including reasonable attorneys' fees and expenses for documentation and negotiation of this Agreement) incurred through and after the Effective Date, when due (or, if no stated due date, upon demand by Bank). Borrower has paid to Bank a good faith deposit of Fifteen Thousand Dollars ($15,000) which shall be applied towards Bank Expenses as of the Effective Date with the remainder, if any, refunded to Borrower.

(d) Fees Fully Earned. Unless otherwise provided in this Agreement or in a separate writing by Bank, Borrower shall not be entitled to any credit, rebate, or repayment of any fees earned by Bank pursuant to this Agreement notwithstanding any termination of this Agreement or the suspension or termination of Bank's obligation to make loans and advances hereunder. Bank may deduct amounts owing by Borrower under the clauses of this Section 2.4 pursuant to the terms of Section 2.5(c). Bank shall provide Borrower written notice of deductions made from the Designated Deposit Account pursuant to the terms of the clauses of this Section 2.4.

2.5 Payments; Application of Payments; Debit of Accounts.

(a) All payments to be made by Borrower under any Loan Document shall be made in immediately available funds in Dollars, without setoff or counterclaim, before 12:00 p.m. Pacific time on the date when due. Payments of principal and/or interest received after 12:00 p.m. Pacific time are considered received at the opening of business on the next Business Day. When a payment is due on a day that is not a Business Day, the payment shall be due the next Business Day, and additional fees or interest, as applicable, shall continue to accrue until paid.

(b) Bank has the exclusive right to determine the order and manner in which all payments with respect to the Obligations may be applied. Borrower shall have no right to specify the order or the accounts to which Bank shall allocate or apply any payments required to be made by Borrower to Bank or otherwise received by Bank under this Agreement when any such allocation or application is not specified elsewhere in this Agreement.

(c) Bank may debit any of Borrower's deposit accounts, including the Designated Deposit Account, for principal and interest payments or any other amounts Borrower owes Bank when due. These debits shall not constitute a set-off.

2.6 Withholding. Payments received by Bank from Borrower under this Agreement will be made free and clear of and without deduction for any and all present or future taxes, levies, imposts, duties, deductions, withholdings, assessments, fees or other charges imposed by any Governmental Authority (including any interest, additions to tax or penalties applicable thereto). Specifically, however, if at any time any Governmental Authority, applicable law, regulation or international agreement requires Borrower to make any withholding or deduction from any such payment or other sum payable hereunder to Bank, Borrower hereby covenants and agrees that the amount due from Borrower with respect to such payment or other sum payable hereunder will be increased to the extent necessary to ensure that, after the making of such required withholding or deduction, Bank receives a net sum equal to the sum which it would have received had no withholding or deduction been required, and Borrower shall pay the full amount withheld or deducted to the relevant Governmental Authority. Borrower will, upon request, furnish Bank with proof reasonably satisfactory to Bank indicating that Borrower has made such withholding payment; provided, however, that Borrower need not make any withholding payment if the amount or validity of such withholding payment is contested in good faith by appropriate and timely proceedings and as to which payment in full is bonded or reserved against by Borrower. The agreements and obligations of Borrower contained in this Section 2.6 shall survive the termination of this Agreement.

3 CONDITIONS OF LOANS

3.1 Conditions Precedent to Initial Credit Extension. Bank's obligation to make the initial Credit Extension is subject to the condition precedent that Bank shall have received, in form and substance satisfactory to Bank, such documents, and completion of such other matters, as Bank may reasonably deem necessary or appropriate, including, without limitation:

(a) duly executed signatures via the Bank's portal in DocuSign to the Loan Documents;

(b) duly executed signatures via the Bank's portal in DocuSign to the Warrant;

(c) duly executed signatures to the Control Agreements required by Section 6.6(b);

(d) the Operating Documents and long-form good standing certificates of Borrower and its Subsidiaries certified by the Secretary of State (or equivalent agency) of Borrower's and such Subsidiaries' jurisdiction of organization or formation and each jurisdiction in which Borrower and each Subsidiary is qualified to conduct business, each as of a date no earlier than thirty (30) days prior to the Effective Date;

(e) duly executed signatures via the Bank's portal in DocuSign to the completed Borrowing Resolutions for Borrower;

(f) certified copies, dated as of a recent date, of financing statement searches, as Bank may request, accompanied by written evidence (including any UCC termination statements) that the Liens indicated in any such financing statements either constitute Permitted Liens or have been or, in connection with the initial Credit Extension, will be terminated or released;

(g) the Perfection Certificate of Borrower, together with the duly executed signature thereto;

(h) all Indebtedness due to Borrower's officers, directors, current and former shareholders and other Lien holders, if any, is subordinated to the Obligations pursuant to a subordination agreement between such holders of Indebtedness and Bank, in form and substance satisfactory to Bank;

(i) a copy of Borrower's Investors' Rights Agreement and any amendments thereto;

(j) evidence satisfactory to Bank that the insurance policies required by Section 6.5 hereof are in full force and effect; and

(k) payment of the fees and Bank Expenses then due as specified in Section 2.4 hereof.

3.2 Conditions Precedent to all Credit Extensions. Bank's obligations to make each Credit Extension, including the initial Credit Extension, is subject to the following conditions precedent:

(a) except as otherwise provided in Section 3.5(a), timely receipt of an executed Payment/Advance Form;

(b) the representations and warranties in this Agreement shall be true, accurate, and complete in all material respects on the date of the Payment/Advance Form and on the Funding Date of each Credit Extension; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date, and no Event of Default shall have occurred and be continuing or result from the Credit Extension. Each Credit Extension is Borrower's representation and warranty on that date that the representations and warranties in this Agreement remain true, accurate, and complete in all material respects; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date; and

(c) Bank determines to its satisfaction that there has not been any material impairment in the general affairs, management, results of operation, financial condition or the prospect of repayment of the Obligations, or any material adverse deviation by Borrower from the most recent business plan of Borrower presented to and accepted by Bank.

3.3 Post-Closing Conditions. Unless otherwise provided by Bank in writing, within thirty (30) days after the Effective Date, Bank shall have received, in form and substance satisfactory to Bank:

(a) a landlord's consent in favor of Bank for Borrower's headquarters by the respective landlord thereof, together with the duly executed signatures thereto; and

(b) appropriate evidence showing lender loss payable, additional insured and notice of cancellation clauses or endorsements in favor of Bank as required by Section 6.5.

3.4 Covenant to Deliver. Except as otherwise provided in Section 3.3, Borrower agrees to deliver to Bank each item required to be delivered to Bank under this Agreement as a condition precedent to any Credit Extension. Borrower expressly agrees that a Credit Extension made prior to the receipt by Bank of any such item shall not constitute a waiver by Bank of Borrower's obligation to deliver such item, and the making of any Credit Extension in the absence of a required item shall be in Bank's sole discretion.

3.5 Procedures for Borrowing.

(a) Term Loans. To obtain a Term Loan, Borrower must notify Bank by electronic mail, facsimile or telephone by 12:00 p.m. Pacific Time three (3) Business Days prior to the date the Term Loan is to be made. If such notification is by telephone, Borrower must promptly confirm the notification by delivering to Bank a completed Payment/Advance Form in the form attached as Exhibit B. On the Funding Date, Bank shall credit to Borrower's deposit account, an amount equal to the amount of the Term Loan. Bank may make Term Loans under this Agreement based on instructions from an Authorized Signer. Bank may rely on any telephone notice given by a person whom such Bank reasonably believes is an Authorized Signer.

4 CREATION OF SECURITY INTEREST

4.1 Grant of Security Interest. Borrower hereby grants Bank, to secure the payment and performance in full of all of the Obligations, a continuing security interest in, and pledges to Bank, the Collateral, wherever located, whether now owned or hereafter acquired or arising, and all proceeds and products thereof.

Borrower acknowledges that it previously has entered, and/or may in the future enter, into Bank Services Agreements with Bank. Regardless of the terms of any Bank Services Agreement, Borrower agrees that any amounts Borrower owes Bank thereunder shall be deemed to be Obligations hereunder and that it is the intent of Borrower and Bank to have all such Obligations secured by the first priority perfected security interest in the Collateral granted herein (subject only to Permitted Liens that are permitted pursuant to the terms of this Agreement to have superior priority to Bank's Lien in this Agreement).

If this Agreement is terminated, Bank's Lien in the Collateral shall continue until the Obligations (other than inchoate indemnity obligations) are repaid in full in cash. Upon payment in full in cash of the Obligations (other than inchoate indemnity obligations) and at such time as Bank's obligation to make Credit Extensions has terminated, Bank shall, at the sole cost and expense of Borrower, release its Liens in the Collateral and all rights therein shall revert to Borrower. At the request and sole expense of Borrower following any such termination, Bank will deliver to Borrower any Collateral (other than Collateral Accounts and cash collateral for Bank Services, if any, pursuant to this Section) held by Bank under this Agreement, and if necessary, execute and deliver to Borrower such documents as Borrower reasonably requests to evidence such termination which are in form reasonably acceptable to Bank. In the event (x) all Obligations (other than inchoate indemnity obligations), except for Bank Services, are satisfied in full, and (y) this Agreement is terminated, Bank shall terminate the security interest granted herein upon Borrower providing cash collateral acceptable to Bank in its good faith business judgment for Bank Services, if any. In the event such Bank Services consist of outstanding Letters of Credit, Borrower shall provide to Bank cash collateral in an amount equal to (x) if such Letters of Credit are denominated in Dollars, then at least one hundred five percent (105.0%); and (y) if such Letters of Credit are denominated in a Foreign Currency, then at least one hundred ten percent (110.0%), of the Dollar Equivalent of the face amount of all such Letters of Credit plus all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its business judgment), to secure all of the Obligations relating to such Letters of Credit.

4.2 Priority of Security Interest. Borrower represents, warrants, and covenants that the security interest granted herein is and shall at all times continue to be a first priority security interest in the Collateral (subject only to Permitted Liens that are permitted pursuant to the terms of this Agreement to have superior priority to Bank's Lien under this Agreement) which is also a perfected security interest (subject solely to Bank filing and maintaining/continuing a UCC-1

financing statement covering the Collateral against "**Spruce Biosciences, Inc.**" with the Delaware Secretary of State). If Borrower shall acquire a commercial tort claim with a value in excess of Twenty Thousand Dollars ($20,000), Borrower shall promptly notify Bank in a writing signed by Borrower of the general details thereof and upon Bank's request, grant to Bank in such writing a security interest therein and in the proceeds thereof, all upon the terms of this Agreement, with such writing to be in form and substance reasonably satisfactory to Bank.

4.3 Authorization to File Financing Statements. Borrower hereby authorizes Bank to file financing statements, without notice to Borrower, with all appropriate jurisdictions to perfect or protect Bank's interest or rights hereunder, including a notice that any disposition of the Collateral in violation of the terms of this Agreement, by either Borrower or any other Person, shall be deemed to violate the rights of Bank under the Code.

5 REPRESENTATIONS AND WARRANTIES

Borrower represents and warrants as follows:

5.1 Due Organization, Authorization; Power and Authority. Borrower is duly existing and in good standing as a Registered Organization in its jurisdiction of formation and is qualified and licensed to do business and is in good standing in any jurisdiction in which the conduct of its business or its ownership of property requires that it be qualified except where the failure to do so could not reasonably be expected to have a material adverse effect on Borrower's business. In connection with this Agreement, Borrower has delivered to Bank a completed certificate signed by Borrower, entitled "**Perfection Certificate**". Borrower represents and warrants to Bank that (a) Borrower's exact legal name is that indicated on the Perfection Certificate and on the signature page hereof; (b) Borrower is an organization of the type and is organized in the jurisdiction set forth in the Perfection Certificate; (c) the Perfection Certificate accurately sets forth Borrower's organizational identification number or accurately states that Borrower has none; (d) the Perfection Certificate accurately sets forth Borrower's place of business, or, if more than one, its chief executive office as well as Borrower's mailing address (if different than its chief executive office); (e) Borrower (and each of its predecessors) has not, in the past five (5) years, changed its jurisdiction of formation, organizational structure or type, or any organizational number assigned by its jurisdiction; and (f) all other information set forth on the Perfection Certificate pertaining to Borrower and each of its Subsidiaries is accurate and complete in all material respects (it being understood and agreed that Borrower may from time to time update certain information in the Perfection Certificate after the Effective Date to the extent permitted by one or more specific provisions in this Agreement and the Perfection Certificate shall be deemed automatically updated to the extent permitted by one or more specific provisions in this Agreement and that the Perfection Certificate shall be deemed updated to reflect such information). If Borrower is not now a Registered Organization but later becomes one, Borrower shall promptly notify Bank of such occurrence and provide Bank with Borrower's organizational identification number.

The execution, delivery and performance by Borrower of the Loan Documents to which it is a party have been duly authorized, and do not (i) conflict with any of Borrower's organizational documents or all applicable consents have been obtained, (ii) contravene, conflict with, constitute a default under or violate any material Requirement of Law, (iii) contravene, conflict or violate

any applicable order, writ, judgment, injunction, decree, determination or award of any Governmental Authority by which Borrower or any of its Subsidiaries or any of their property or assets may be bound or affected, (iv) require any action by, filing, registration, or qualification with, or Governmental Approval from, any Governmental Authority (except such Governmental Approvals which have already been obtained and are in full force and effect), or (v) conflict with, contravene, constitute a default or breach under, or result in or permit the termination or acceleration of, any material agreement by which Borrower is bound. Borrower is not in default under any agreement to which it is a party or by which it is bound in which the default could reasonably be expected to cause a Material Adverse Change.

5.2 Collateral. Borrower has good title to, rights in, and the power to transfer each item of the Collateral upon which it purports to grant a Lien hereunder, free and clear of any and all Liens except Permitted Liens. Borrower has no Collateral Accounts at or with any bank or financial institution other than Bank or Bank's Affiliates except for the Collateral Accounts described in the Perfection Certificate delivered to Bank in connection herewith and which Borrower has taken such actions as are necessary to give Bank a perfected security interest therein, pursuant to the terms of Section 6.6(b). The Accounts are bona fide, existing obligations of the Account Debtors.

No Collateral valued in excess of One Hundred Thousand Dollars ($100,000) (other than Offsite Collateral (as defined below)) is in the possession of any third party bailee (such as a warehouse) except as otherwise provided in the Perfection Certificate or as notified to Bank by Borrower in writing from time to time as required by Section 7.2. None of the components of the Collateral valued in excess of One Hundred Thousand Dollars ($100,000) (other than Offsite Collateral) shall be maintained at locations other than as provided in the Perfection Certificate or as permitted pursuant to Section 7.2. "**Offsite Collateral**" means computer equipment and cell phones and related mobile equipment in the possession of employees or Borrower's agents in the ordinary course of business with an aggregate value not to exceed One Hundred Thousand Dollars ($100,000).

Borrower is the sole owner of the Intellectual Property which it owns or purports to own except for (a) licenses permitted under Section 7.1(f), (b) over-the-counter software that is commercially available to the public, and (c) material Intellectual Property licensed to Borrower and noted on the Perfection Certificate or as to which Borrower has notified Bank in accordance with Section 6.7(b). To Borrower's knowledge, each Patent which it owns or purports to own and which is material to Borrower's business is valid and enforceable, and no part of the Intellectual Property which Borrower owns or purports to own and which is material to Borrower's business has been judged invalid or unenforceable, in whole or in part. To Borrower's knowledge, no claim has been made in writing that any part of the Intellectual Property violates the rights of any third party except to the extent such claim would not reasonably be expected to have a material adverse effect on Borrower's business. Except as noted on the Perfection Certificate or as to which Borrower has notified Bank in accordance with Section 6.7(b), Borrower is not a party to, nor is it bound by, any Restricted License.

5.3 Intentionally Omitted.

5.4 Litigation. There are no actions or proceedings pending or, to the knowledge of any Responsible Officer, threatened in writing by or against Borrower or any of its Subsidiaries involving more than, individually or in the aggregate, One Hundred Thousand Dollars ($100,000).

5.5 Financial Statements; Financial Condition. All consolidated financial statements for Borrower and any of its Subsidiaries delivered to Bank by submission to the Financial Statement Repository or otherwise submitted to Bank fairly present in all material respects Borrower's consolidated financial condition and Borrower's consolidated results of operations as of the dates thereof and for the periods presented. There has not been any material deterioration in Borrower's consolidated financial condition since the date of the most recent financial statements submitted to the Financial Statement Repository or otherwise submitted to Bank.

5.6 Solvency. The fair salable value of Borrower's consolidated assets (including goodwill minus disposition costs) exceeds the fair value of Borrower's liabilities; Borrower is not left with unreasonably small capital after the transactions in this Agreement; and Borrower is able to pay its debts (including trade debts) as they mature.

5.7 Regulatory Compliance. Borrower is not an "investment company" or a company "controlled" by an "investment company" under the Investment Company Act of 1940, as amended. Borrower is not engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Borrower (a) has complied in all material respects with all Requirements of Law, and (b) has not violated any Requirements of Law the violation of which could reasonably be expected to have a material adverse effect on its business. None of Borrower's or any of its Subsidiaries' properties or assets has been used by Borrower or any Subsidiary or, to the best of Borrower's knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than legally. Borrower and each of its Subsidiaries have obtained all consents, approvals and authorizations of, made all declarations or filings with, and given all notices to, all Governmental Authorities that are necessary to continue their respective businesses as currently conducted in all material respects.

5.8 Subsidiaries; Investments. Borrower does not own any stock, partnership, or other ownership interest or other equity securities except for Permitted Investments.

5.9 Tax Returns and Payments; Pension Contributions. Borrower has timely filed (including deadlines that have been extended for validly filed extensions thereof) all required federal and state and other material tax returns and reports, and Borrower has timely paid all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Borrower except (a) to the extent such taxes are being contested in good faith by appropriate proceedings promptly instituted and diligently conducted, so long as such reserve or other appropriate provision, if any, as shall be required in conformity with GAAP shall have been made therefor, or (b) if such taxes, assessments, deposits and contributions do not, individually or in the aggregate, exceed Twenty-Five Thousand Dollars ($25,000).

To the extent Borrower defers payment of any contested taxes, Borrower shall (i) notify Bank in writing of the commencement of, and any material development in, the proceedings, and (ii) post bonds or take any other steps required to prevent the governmental authority levying such contested taxes from obtaining a Lien upon any of the Collateral that is other than a "**Permitted Lien.**" Borrower is unaware of any claims or adjustments proposed for any of Borrower's prior tax years which could result in additional taxes becoming due and payable by Borrower in excess of Twenty-Five Thousand Dollars ($25,000). Borrower has paid all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms, and Borrower has not withdrawn from participation in, and has not permitted partial or complete termination of, or permitted the occurrence of any other event with respect to, any such plan which could reasonably be expected to result in any liability of Borrower, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other governmental agency.

5.10 Use of Proceeds. Borrower shall use the proceeds of the Credit Extensions solely as working capital and to fund its general business requirements and not for personal, family, household or agricultural purposes.

5.11 Full Disclosure. No written representation, warranty or other statement of Borrower in any report, certificate or written statement submitted to the Financial Statement Repository or otherwise submitted to Bank, as of the date such representation, warranty, or other statement was made, taken together with all such written reports, certificates and written statements submitted to the Financial Statement Repository or otherwise submitted to Bank, contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements contained in the reports, certificates or written statements not misleading (it being recognized by Bank that the projections and forecasts provided by Borrower in good faith and based upon reasonable assumptions are not viewed as facts and that actual results during the period or periods covered by such projections and forecasts may differ from the projected or forecasted results).

5.12 Definition of "Knowledge." For purposes of the Loan Documents, whenever a representation or warranty is made to Borrower's knowledge or awareness, to the "best of Borrower's knowledge, or with a similar qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of any Responsible Officer.

6 AFFIRMATIVE COVENANTS

Borrower shall do all of the following:

6.1 Government Compliance.

(a) Maintain its and all its Subsidiaries' legal existence and good standing in their respective jurisdictions of formation and maintain qualification in each jurisdiction in which the failure to so qualify would reasonably be expected to have a material adverse effect on Borrower's business or operations. Borrower shall comply, and have each Subsidiary comply, in all material respects, with all laws, ordinances and regulations to which it is subject.

(b) Obtain all of the Governmental Approvals necessary for the performance by Borrower of its obligations under the Loan Documents to which it is a party and the grant of a security interest to Bank in all of the Collateral. Borrower shall promptly provide copies of any such obtained Governmental Approvals to Bank.

6.2 Financial Statements, Reports. Provide Bank with the following by submitting to the Financial Statement Repository or otherwise submitting to Bank:

(a) Monthly Financial Statements. As soon as available, but no later than thirty (30) days after the last day of each month, a company prepared consolidated balance sheet, statement of cash flows and income statement covering Borrower's consolidated operations for such month prepared in accordance with GAAP and in a form acceptable to Bank (the "**Monthly Financial Statements**");

(b) Monthly Compliance Statement. Within thirty (30) days after the last day of each month and together with the Monthly Financial Statements, a duly completed Compliance Statement, confirming that as of the end of such month, Borrower was in full compliance with all of the terms and conditions of this Agreement, and setting forth such other information as Bank may reasonably request;

(c) Annual Operating Budget and Financial Projections. Within thirty (30) days after the last day of Borrower's fiscal year, (i) annual operating budgets (including income statements, balance sheets and cash flow statements, by month) for the upcoming fiscal year of Borrower, and (ii) annual financial projections for the following fiscal year (on a quarterly basis) as approved by Borrower's board of directors, together with any related material business forecasts used in the preparation of such annual financial projections; and more frequently with any periodic updates;

(d) CDD Rule Attestation. Prompt written notice of any changes to the beneficial ownership information set out in item 13 of the Perfection Certificate. Borrower understands and acknowledges that Bank relies on such true, accurate and up-to-date beneficial ownership information to meet Bank's regulatory obligations to obtain, verify and record information about the beneficial owners of its legal entity customers;

(e) Annual Audited Financial Statements. Commencing with Borrower's 2019 fiscal year, to the extent annual audited financial statements are required by Borrower's Board of Directors, as soon as available, but no later than one hundred eighty (180) days after the last day of Borrower's fiscal year, audited and certified consolidated financial statements prepared under GAAP, consistently applied, together with an unqualified opinion (other than a qualification as to going concern typical for venture backed companies similar to Borrower) on the financial statements from an independent certified public accounting firm reasonably acceptable to Bank;

(f) Annual Company Prepared Financial Statements. Commencing with Borrower's 2019 fiscal year, to the extent annual audited financial statements are not required by Borrower's Board of Directors, as soon as available, but no later than thirty (30) days after the last day of Borrower's fiscal year, company prepared annual consolidated financial statements prepared under GAAP, and in a form acceptable to Bank;

(g) Other Statements. Within five (5) Business Days of delivery, copies of all material statements, reports and notices made generally available to Borrower's security holders or to any holders of Subordinated Debt;

(h) SEC Filings. In the event that Borrower becomes subject to the reporting requirements under the Exchange Act within five (5) days of filing, copies of all periodic and other reports, proxy statements and other materials filed by Borrower with the SEC, any Governmental Authority succeeding to any or all of the functions of the SEC or with any national securities exchange, or distributed to its shareholders, as the case may be. Documents required to be delivered pursuant to the terms hereof (to the extent any such documents are included in materials otherwise filed with the SEC) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date on which Borrower posts such documents, or provides a link thereto, on Borrower's website on the Internet at Borrower's website address; provided, however, Borrower shall promptly notify Bank in writing (which may be by electronic mail) of the posting of any such documents;

(i) Legal Action Notice. A prompt report of any legal actions pending or threatened in writing against Borrower or any of its Subsidiaries that could reasonably be expected to result in damages or costs to Borrower or any of its Subsidiaries of, individually or in the aggregate, One Hundred Thousand Dollars ($100,000) or more; and

(j) Other Information. Other information reasonably requested by Bank.

Any submission by Borrower of a Compliance Statement or any other financial statement submitted to the Financial Statement Repository pursuant to this Section 6.2 or otherwise submitted to Bank shall be deemed to be a representation by Borrower that (a) as of the date of such Compliance Statement or other financial statement, the information and calculations set forth therein are true, accurate and correct in all material respects, (b) as of the end of the compliance period set forth in such submission, Borrower is in complete compliance with all required covenants except as noted in such Compliance Statement or other financial statement, as applicable; (c) as of the date of such submission, no Events of Default have occurred or are continuing except as noted in such Compliance Statement or other financial statement, as applicable; (d) all representations and warranties other than any representations or warranties that are made as of a specific date in Article 5 remain true and correct in all material respects as of the date of such submission except as noted in such Compliance Statement or other financial statement, as applicable; (e) as of the date of such submission, Borrower and each of its Subsidiaries has timely filed all required tax returns and reports, and Borrower has timely paid all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Borrower except as otherwise permitted pursuant to the terms of Section 5.9; and (f) as of the date of such submission, no Liens have been levied or claims made against Borrower or any of its Subsidiaries relating to unpaid employee payroll or benefits of which Borrower has not previously provided written notification to Bank.

6.3 Inventory; Returns. Keep all Inventory in good and marketable condition, free from material defects. Returns and allowances between Borrower and its Account Debtors shall follow Borrower's customary practices as they exist at the Effective Date. Borrower must promptly notify Bank of all returns, recoveries, disputes and claims that involve more than Fifty Thousand Dollars ($50,000).

6.4 Taxes; Pensions. Timely file, and require each of its Subsidiaries to timely file (including deadlines that have been extended for validly filed extensions thereof), all required federal and state and other material tax returns and reports and timely pay, and require each of its Subsidiaries to timely pay, all foreign, federal, state and local taxes, assessments, deposits and contributions owed by Borrower and each of its Subsidiaries, except as permitted pursuant to the terms of Section 5.9 hereof, and shall deliver to Bank, on demand, appropriate certificates attesting to such payments, and pay all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms.

6.5 Insurance.

(a) Keep its business and the Collateral insured for risks and in amounts standard for companies in Borrower's industry and location and as Bank may reasonably request. Insurance policies shall be in a form, with financially sound and reputable insurance companies that are not Affiliates of Borrower, and in amounts that are reasonably satisfactory to Bank. All property policies shall have a lender's loss payable endorsement showing Bank as lender loss payee. All liability policies shall show, or have endorsements showing, Bank as an additional insured. Bank shall be named as lender loss payee and/or additional insured with respect to any such insurance providing coverage in respect of any Collateral.

(b) Ensure that proceeds payable under any property policy are, at Bank's option, payable to Bank on account of the Obligations. Notwithstanding the foregoing, (a) so long as no Event of Default has occurred and is continuing, Borrower shall have the option of applying the proceeds of any casualty policy up to One Hundred Thousand Dollars ($100,000) with respect to any loss, but not exceeding Two Hundred Fifty Thousand Dollars ($250,000) in the aggregate for all losses under all casualty policies in any one year, toward the replacement or repair of destroyed or damaged property; provided that any such replaced or repaired property (i) shall be of equal or like value as the replaced or repaired Collateral and (ii) shall be deemed Collateral in which Bank has been granted a first priority security interest (subject to Permitted Liens), and (b) after the occurrence and during the continuance of an Event of Default, all proceeds payable under such casualty policy shall, at the option of Bank, be payable to Bank on account of the Obligations.

(c) At Bank's request, Borrower shall deliver certified copies of insurance policies and evidence of all premium payments. Each provider of any such insurance required under this Section 6.5 shall agree, by endorsement upon the policy or policies issued by it or by independent instruments furnished to Bank, that it will give Bank thirty (30) days prior written notice before any such policy or policies shall be materially altered or canceled. If Borrower fails to obtain insurance as required under this Section 6.5 or to pay any amount or furnish any required proof of payment to third persons and Bank, Bank may make all or part of such payment or obtain such insurance policies required in this Section 6.5, and take any action under the policies Bank deems prudent.

6.6 Operating Accounts.

(a) (i) maintain all of its operating and other deposit accounts and securities accounts and excess cash with Bank and Bank's Affiliates, and (ii) conduct all primary banking with Bank, such as letters of credit and corporate credit cards.

(b) Provide Bank five (5) days prior written notice before establishing any Collateral Account at or with any bank or financial institution other than Bank or Bank's Affiliates. For each Collateral Account that Borrower at any time maintains, Borrower shall cause the applicable bank or financial institution (other than Bank) at or with which any Collateral Account is maintained to execute and deliver a Control Agreement or other appropriate instrument with respect to such Collateral Account to perfect Bank's Lien in such Collateral Account in accordance with the terms hereunder which Control Agreement may not be terminated without the prior written consent of Bank. The provisions of the previous sentence shall not apply to deposit accounts exclusively used for payroll, payroll taxes and other employee wage and benefit payments to or for the benefit of Borrower's employees and identified to Bank by Borrower as such.

6.7 Protection of Intellectual Property Rights.

(a) (i) Use commercially reasonable efforts to protect, defend and maintain the validity and enforceability of its Intellectual Property material to Borrower's business; (ii) promptly advise Bank in writing of material infringements or any other event that could reasonably be expected to materially and adversely affect the value of its Intellectual Property material to Borrower's business; and (iii) not allow any Intellectual Property material to Borrower's business to be abandoned, forfeited or dedicated to the public without Bank's written consent.

(b) Provide written notice to Bank within thirty (30) days of entering or becoming bound by any Restricted License (other than over-the-counter software that is commercially available to the public). Borrower shall take such commercially reasonable steps as Bank requests to obtain the consent of, or waiver by, any person whose consent or waiver is necessary for (i) any Restricted License to be deemed "**Collateral**" and for Bank to have a security interest in it that might otherwise be restricted or prohibited by law or by the terms of any such Restricted License, whether now existing or entered into in the future, and (ii) Bank to have the ability in the event of a liquidation of any Collateral to dispose of such Collateral in accordance with Bank's rights and remedies under this Agreement and the other Loan Documents.

6.8 Litigation Cooperation. From the date hereof and continuing through the termination of this Agreement, make available to Bank, without expense to Bank, Borrower and its officers, employees and agents and Borrower's books and records, to the extent that Bank may deem them reasonably necessary to prosecute or defend any third-party suit or proceeding instituted by or against Bank with respect to any Collateral or relating to Borrower.

6.9 Access to Collateral; Books and Records. Allow Bank, or its agents, to inspect the Collateral and audit and copy Borrower's Books. Such inspections or audits shall be conducted no more often than once every twelve (12) months unless an Event of Default has occurred and is continuing in which case such inspections and audits shall occur as often as Bank shall determine is necessary. The foregoing inspections and audits shall be at Borrower's expense.

6.10 Formation or Acquisition of Subsidiaries. Notwithstanding and without limiting the negative covenants contained in Sections 7.3 and 7.7 hereof, at the time that Borrower forms any direct or indirect Subsidiary or acquires any direct or indirect Subsidiary after the Effective Date (including, without limitation, pursuant to a Division), Borrower shall promptly notify Bank

of such event and, upon Bank's written request, (a) cause any such new Domestic Subsidiary to provide to Bank a joinder to this Agreement to cause such Domestic Subsidiary to become a co-borrower hereunder, together with such appropriate financing statements and/or Control Agreements, all in form and substance satisfactory to Bank in good faith (including being sufficient to grant Bank a first priority Lien (subject to Permitted Liens) in and to the assets of the same type as the Collateral of such newly formed or acquired Domestic Subsidiary), (b) provide to Bank appropriate certificates and powers and financing statements, pledging all of the direct or beneficial ownership interest in such new Domestic Subsidiary, in form and substance satisfactory to Bank, (c) pledge sixty-five percent (65%) of the direct or beneficial ownership interest of any new Foreign Subsidiary directly owned by Borrower, and (d) provide to Bank all other documentation in form and substance satisfactory to Bank, including one or more opinions of counsel satisfactory to Bank in good faith, which in its opinion is appropriate with respect to the execution and delivery of the applicable documentation referred to above. Any document, agreement, or instrument executed or issued pursuant to this Section shall be a Loan Document.

6.11 Further Assurances. Execute any further instruments and take further action as Bank reasonably requests to perfect or continue Bank's Lien in the Collateral or to effect the purposes of this Agreement. Deliver to Bank, within five (5) Business Days after the same are sent or received, copies of all correspondence, reports, documents and other filings with any Governmental Authority regarding compliance with or maintenance of Governmental Approvals or Requirements of Law, in each case, that are material and non-routine, or that could reasonably be expected to have a material effect on any of the Governmental Approvals or otherwise on the operations of Borrower or any of its Subsidiaries.

7 NEGATIVE COVENANTS

Borrower shall not do any of the following without Bank's prior written consent:

7.1 Dispositions. Convey, sell, lease, transfer, assign, or otherwise dispose of (including, without limitation, pursuant to a Division) (collectively, "**Transfer**"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property, except for Transfers (a) of Inventory in the ordinary course of business; (b) of worn-out, surplus or obsolete Equipment that is, in the reasonable judgment of Borrower, no longer economically practicable to maintain or useful in the ordinary course of business of Borrower; (c) consisting of Permitted Liens and Permitted Investments; (d) consisting of the sale or issuance of any stock of Borrower permitted under Section 7.2 of this Agreement; (e) consisting of Borrower's use or transfer of money or Cash Equivalents in the ordinary course of its business for the payment of ordinary course business expenses in a manner that is not prohibited by the terms of this Agreement or the other Loan Documents; (f) of non-exclusive licenses for the use of the Intellectual Property of Borrower or its Subsidiaries in the ordinary course of business; and (g) other Transfers in an aggregate amount not to exceed One Hundred Thousand Dollars ($100,000) per fiscal year.

7.2 Changes in Business, Management, Control, or Business Locations. (a) Engage in or permit any of its Subsidiaries to engage in any business other than the businesses currently engaged in by Borrower and such Subsidiary, as applicable, or reasonably related thereto; (b) liquidate or dissolve (except that a Subsidiary may liquidate or dissolve provided simultaneous therewith all of its assets are transferred to Borrower); or (c) fail to provide notice to Bank of any Key Person departing from or ceasing to be employed by Borrower within five (5) Business Days after their departure from Borrower; or (d) permit or suffer any Change in Control.

Borrower shall not, without at least fifteen (15) days prior written notice to Bank: (1) add any new offices or business locations, including warehouses (unless such new offices or business locations contain less than One Hundred Thousand Dollars ($100,000) in Borrower's assets or property) or deliver any portion of the Collateral valued, individually or in the aggregate, in excess of One Hundred Thousand Dollars ($100,000) to a bailee at a location other than to a bailee and at a location already disclosed in the Perfection Certificate, (2) change its jurisdiction of organization, (3) change its organizational structure or type, (4) change its legal name, or (5) change any organizational number (if any) assigned by its jurisdiction of organization. If Borrower intends to deliver any portion of the Collateral valued, individually or in the aggregate, in excess of One Hundred Thousand Dollars ($100,000) to a bailee, and Bank and such bailee are not already parties to a bailee agreement governing both the Collateral and the location to which Borrower intends to deliver the Collateral, then Borrower shall notify Bank in writing and use commercially reasonable efforts to cause such bailee to execute and deliver a bailee agreement in form and substance satisfactory to Bank. Notwithstanding the foregoing, Bank shall not require a bailee agreement from the Hong Kong bailee listed in the Perfection Certificate as of the Effective Date.

7.3 Mergers or Acquisitions. Merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with any other Person, or acquire, or permit any of its Subsidiaries to acquire, all or substantially all of the capital stock or property of another Person (including, without limitation, by the formation of any Subsidiary or pursuant to a Division) ; provided, however, only advance written notice to Bank (but not any consent from Bank) will be required for any action restricted solely by this Section 7.3 if (a) Borrower has complied with the notice requirements applicable to prepayments hereunder, (b) all Obligations are prepaid in full in accordance hereunder, including without limitation, Section 2.1.1(d), all Bank Services Agreements are cash collateralized in accordance with Section 4.11 all of Bank's obligations to make any Credit Extensions or lend any further funds to Borrower are terminated, in each case, prior to or as a condition to consummation of such action, and (c) this Agreement is to be terminated in accordance with Section 12.3 upon consummation of such transaction. A Subsidiary may merge or consolidate into another Subsidiary or into Borrower.

7.4 Indebtedness. Create, incur, assume, or be liable for any Indebtedness, or permit any Subsidiary to do so, other than Permitted Indebtedness.

7.5 Encumbrance. Create, incur, allow, or suffer any Lien on any of its property, or assign or convey any right to receive income, including the sale of any Accounts, or permit any of its Subsidiaries to do so, except, in each case, for Permitted Liens, permit any Collateral not to be subject to the first priority security interest granted herein (subject to Permitted Liens), or enter into any agreement, document, instrument or other arrangement (except with or in favor of Bank) with any Person which directly or indirectly prohibits or has the effect of prohibiting Borrower or any Subsidiary from assigning, mortgaging, pledging, granting a security interest in or upon, or encumbering any of Borrower's or any Subsidiary's Intellectual Property, except as is otherwise permitted in Section 7.1 hereof and the definition of "**Permitted Liens**" herein.

7.6 Maintenance of Collateral Accounts. Maintain any Collateral Account except pursuant to the terms of Section 6.6(b) hereof.

7.7 Distributions; Investments. (a) Pay any dividends or make any distribution or payment or redeem, retire or purchase any capital stock provided that (i) Borrower may convert any of its convertible securities into other securities pursuant to the terms of such convertible securities or otherwise in exchange thereof, (ii) Borrower may pay dividends solely in common stock; (iii) Borrower may repurchase the stock of former employees, directors or consultants pursuant to stock repurchase agreements so long as an Event of Default does not exist at the time of such repurchase and would not exist after giving effect to such repurchase, provided that the aggregate amount of all such repurchases does not exceed One Hundred Thousand Dollars ($100,000) per fiscal year; and (iv) pay de minimus cash in lieu of issuing fractional shares; or (b) directly or indirectly make any Investment (including, without limitation, by the formation of any Subsidiary) other than Permitted Investments, or permit any of its Subsidiaries to do so.

7.8 Transactions with Affiliates. Directly or indirectly enter into or permit to exist any material transaction with any Affiliate of Borrower, except for (a) transactions that are in the ordinary course of Borrower's business, and that are upon fair and reasonable terms that are no less favorable to Borrower than would be obtained in an arm's length transaction with a non-affiliated Person, (b) equity investments and investor bridge or note financings of Borrower that do not result in a Change in Control, so long as any such Indebtedness, if any, is unsecured Subordinated Debt, (c) reasonable and customary compensation arrangements and benefit plans for officers and other employees of Borrower and its Subsidiaries entered into and maintained in the ordinary course of business), (d) transactions permitted by Section 7.1(d), Section 7.7(a), and clauses (f) or (g) of the definition of Permitted Investments, and (e) compensation of outside directors in the ordinary course of business that is approved by the Board.

7.9 Subordinated Debt. (a) Make or permit any payment on any Subordinated Debt, except under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) except as permitted under the applicable subordination, intercreditor, or other similar agreement between Bank and the holder of such Subordinated Debt, amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof, provide for earlier or greater principal, interest, or other payments thereon, or adversely affect the subordination thereof to Obligations owed to Bank.

7.10 Compliance. Become an "investment company" or a company controlled by an "investment company", under the Investment Company Act of 1940, as amended, or undertake as one of its important activities extending credit to purchase or carry margin stock (as defined in Regulation U of the Board of Governors of the Federal Reserve System), or use the proceeds of any Credit Extension for that purpose; fail to meet the minimum funding requirements of ERISA, permit a Reportable Event or Prohibited Transaction, as defined in ERISA, to occur; fail to comply with the Federal Fair Labor Standards Act or violate any other law or regulation, if the violation could reasonably be expected to have a material adverse effect on Borrower's business, or permit any of its Subsidiaries to do so; withdraw or permit any Subsidiary to withdraw from participation in, permit partial or complete termination of, or permit the occurrence of any other event with respect to, any present pension, profit sharing and deferred compensation plan which could reasonably be expected to result in any liability of Borrower, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other governmental agency.

8 EVENTS OF DEFAULT

Any one of the following shall constitute an event of default (an "**Event of Default**") under this Agreement:

8.1 Payment Default. Borrower fails to (a) make any payment of principal or interest on any Credit Extension when due, or (b) pay any other Obligations within three (3) Business Days after such Obligations are due and payable (which three (3) Business Day cure period shall not apply to payments due on the Term Loan Maturity Date). During the cure period, the failure to make or pay any payment specified under clause (b) hereunder is not an Event of Default (but no Credit Extension will be made during the cure period);

8.2 Covenant Default.

(a) Borrower fails or neglects to perform any obligation in Sections 6.2, 6.4, 6.5, 6.6 or violates any covenant in Section 7; or

(b) Borrower fails or neglects to perform, keep, or observe any other term, provision, condition, covenant or agreement contained in this Agreement or any Loan Documents, and as to any default (other than those specified in this Section 8) under such other term, provision, condition, covenant or agreement that can be cured, has failed to cure the default within ten (10) days after the occurrence thereof; provided, however, that if the default cannot by its nature be cured within the ten (10) day period or cannot after diligent attempts by Borrower be cured within such ten (10) day period, and such default is likely to be cured within a reasonable time, then Borrower shall have an additional period (which shall not in any case exceed thirty (30) days) to attempt to cure such default, and within such reasonable time period the failure to cure the default shall not be deemed an Event of Default (but no Credit Extensions shall be made during such cure period). Cure periods provided under this section shall not apply, among other things, to any other covenants set forth in clause (a) above;

8.3 Material Adverse Change. A Material Adverse Change occurs;

8.4 Attachment; Levy; Restraint on Business.

(a) (i) The service of process seeking to attach, by trustee or similar process, any funds of Borrower or of any entity under the control of Borrower (including a Subsidiary), or (ii) a notice of lien or levy is filed against any of Borrower's assets by any Governmental Authority, and the same under subclauses (i) and (ii) hereof are not, within ten (10) days after the occurrence thereof, discharged or stayed (whether through the posting of a bond or otherwise); provided, however, no Credit Extensions shall be made during any ten (10) day cure period; or

(b) (i) any material portion of Borrower's assets is attached, seized, levied on, or comes into possession of a trustee or receiver, or (ii) any court order enjoins, restrains, or prevents Borrower from conducting all or any material part of its business;

8.5 Insolvency. (a) Borrower is unable to pay its debts (including trade debts) as they become due or otherwise becomes insolvent; (b) Borrower begins an Insolvency Proceeding; or (c) an Insolvency Proceeding is begun against Borrower and is not dismissed or stayed within forty-five (45) days (but no Credit Extensions shall be made while any of the conditions described in clause (a) exist and/or until any Insolvency Proceeding is dismissed);

8.6 Other Agreements. There is, under any agreement to which Borrower is a party with a third party or parties, (a) any default resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount individually or in the aggregate in excess of One Hundred Thousand Dollars ($100,000); or (b) any breach or default by Borrower, the result of which could reasonably be expected to have a material adverse effect on Borrower's business: provided, however, that the Event of Default under this Section 8.6 caused by the occurrence of a breach or default under such other agreement shall be cured or waived for purposes of this Agreement upon Bank receiving written notice from the party asserting such breach or default of such cure or waiver of the breach or default under such other agreement, if at the time of such cure or waiver under such other agreement (x) Bank has not declared an Event of Default under this Agreement and/or exercised any rights with respect thereto; (y) any such cure or waiver does not result in an Event of Default under any other provision of this Agreement or any Loan Document; and (z) in connection with any such cure or waiver under such other agreement, the terms of any agreement with such third party are not modified or amended in any manner which could in the good faith business judgment of Bank be materially less advantageous to Borrower;

8.7 Judgments; Penalties. One or more fines, penalties or final judgments, orders or decrees for the payment of money in an amount, individually or in the aggregate, of at least One Hundred Thousand Dollars ($100,000) (not covered by independent third-party insurance as to which liability has been accepted by such insurance carrier) shall be rendered against Borrower by any Governmental Authority, and the same are not, within ten (10) days after the entry, assessment or issuance thereof, discharged, satisfied, or paid, or after execution thereof, stayed or bonded pending appeal, or such judgments are not discharged prior to the expiration of any such stay (provided that no Credit Extensions will be made prior to the satisfaction, payment, discharge, stay, or bonding of such fine, penalty, judgment, order or decree);

8.8 Misrepresentations. Borrower or any Person acting for Borrower makes any representation, warranty, or other statement now or later in this Agreement, any Loan Document or in any writing delivered to Bank or to induce Bank to enter this Agreement or any Loan Document, and such representation, warranty, or other statement is incorrect in any material respect when made;

8.9 Subordinated Debt. Any document, instrument, or agreement evidencing any Subordinated Debt shall for any reason be revoked or invalidated or otherwise cease to be in full force and effect (other than the conversion of Subordinated Debt into equity securities of Borrower or with Bank's written consent), any Person shall be in breach thereof or contest in any manner the validity or enforceability thereof or deny that it has any further liability or obligation thereunder, or the Obligations shall for any reason be subordinated or shall not have the priority contemplated by this Agreement except as permitted under the applicable subordination, intercreditor, or other similar agreement between Bank and the holder of such Subordinated Debt.

9 BANK'S RIGHTS AND REMEDIES

9.1 Rights and Remedies. Upon the occurrence and during the continuance of an Event of Default, Bank may, without notice or demand, do any or all of the following:

(a) declare all Obligations immediately due and payable (but if an Event of Default described in Section 8.5 occurs all Obligations are immediately due and payable without any action by Bank);

(b) stop advancing money or extending credit for Borrower's benefit under this Agreement or under any other agreement between Borrower and Bank;

(c) demand that Borrower (i) deposit cash with Bank in an amount equal to at least 105% (110% for Letters of Credit denominated in a Foreign Currency), of the Dollar Equivalent of the aggregate face amount of all Letters of Credit remaining undrawn (plus all interest, fees, and costs due or to become due in connection therewith (as estimated by Bank in its good faith business judgment)), to secure all of the Obligations relating to such Letters of Credit, as collateral security for the repayment of any future drawings under such Letters of Credit, and Borrower shall forthwith deposit and pay such amounts, and (ii) pay in advance all letter of credit fees scheduled to be paid or payable over the remaining term of any Letters of Credit;

(d) terminate any FX Contracts;

(e) verify the amount of, demand payment of and performance under, and collect any Accounts and General Intangibles, settle or adjust disputes and claims directly with Account Debtors for amounts on terms and in any order that Bank considers advisable, and notify any Person owing Borrower money of Bank's security interest in such funds;

(f) make any payments and do any acts it considers necessary or reasonable to protect the Collateral and/or its security interest in the Collateral. Borrower shall assemble the Collateral if Bank requests and make it available as Bank designates. Bank may enter premises where the Collateral is located, take and maintain possession of any part of the Collateral, and pay, purchase, contest, or compromise any Lien which appears to be prior or superior to its security interest and pay all expenses incurred. Borrower grants Bank a license to enter and occupy any of its premises, without charge, to exercise any of Bank's rights or remedies;

(g) apply to the Obligations any (i) balances and deposits of Borrower it holds, or (ii) any amount held by Bank owing to or for the credit or the account of Borrower;

(h) ship, reclaim, recover, store, finish, maintain, repair, prepare for sale, advertise for sale, and sell the Collateral. Bank is hereby granted a non-exclusive, royalty-free license or other right to use, without charge, Borrower's labels, Patents, Copyrights, mask works, rights of use of any name, trade secrets, trade names, Trademarks, and advertising matter, or any similar property as it pertains to the Collateral, in completing production of, advertising for sale, and selling any Collateral and, in connection with Bank's exercise of its rights under this Section, Borrower's rights under all licenses and all franchise agreements inure to Bank's benefit;

(i) place a "hold" on any account maintained with Bank and/or deliver a notice of exclusive control, any entitlement order, or other directions or instructions pursuant to any Control Agreement or similar agreements providing control of any Collateral;

(j) demand and receive possession of Borrower's Books; and

(k) exercise all rights and remedies available to Bank under the Loan Documents or at law or equity, including all remedies provided under the Code (including disposal of the Collateral pursuant to the terms thereof).

9.2 Power of Attorney. Borrower hereby irrevocably appoints Bank as its lawful attorney-in-fact, exercisable upon the occurrence and during the continuance of an Event of Default, to: (a) endorse Borrower's name on any checks or other forms of payment or security; (b) sign Borrower's name on any invoice or bill of lading for any Account or drafts against Account Debtors; (c) settle and adjust disputes and claims about the Accounts directly with Account Debtors, for amounts and on terms Bank determines reasonable; (d) make, settle, and adjust all claims under Borrower's insurance policies; (e) pay, contest or settle any Lien, charge, encumbrance, security interest, and adverse claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; and (f) transfer the Collateral into the name of Bank or a third party as the Code permits. Borrower hereby appoints Bank as its lawful attorney-in-fact to sign Borrower's name on any documents necessary to perfect or continue the perfection of Bank's security interest in the Collateral regardless of whether an Event of Default has occurred until all Obligations (other than inchoate indemnity obligations) have been satisfied in full and Bank is under no further obligation to make Credit Extensions hereunder or lend any further funds to Borrower. Bank's foregoing appointment as Borrower's attorney in fact, and all of Bank's rights and powers, coupled with an interest, are irrevocable until all Obligations (other than inchoate indemnity obligations) have been fully repaid and performed and Bank's obligation to provide Credit Extensions terminates.

9.3 Protective Payments. If Borrower fails to obtain the insurance called for by Section 6.5 or fails to pay any premium thereon or fails to pay any other amount which Borrower is obligated to pay under this Agreement or any other Loan Document or which may be required to preserve the Collateral, Bank may obtain such insurance or make such payment, and all amounts so paid by Bank are Bank Expenses and immediately due and payable, bearing interest at the then highest rate applicable to the Obligations, and secured by the Collateral. Bank will make reasonable efforts to provide Borrower with notice of Bank obtaining such insurance at the time it is obtained or within a reasonable time thereafter. No payments by Bank are deemed an agreement to make similar payments in the future or Bank's waiver of any Event of Default.

9.4 Application of Payments and Proceeds Upon Default. If an Event of Default has occurred and is continuing, Bank shall have the right to apply in any order any funds in its possession, whether from Borrower account balances, payments, proceeds realized as the result of any collection of Accounts or other disposition of the Collateral, or otherwise, to the Obligations. Bank shall pay any surplus to Borrower by credit to the Designated Deposit Account or to other Persons legally entitled thereto; Borrower shall remain liable to Bank for any deficiency. If Bank, directly or indirectly, enters into a deferred payment or other credit transaction with any purchaser at any sale of Collateral, Bank shall have the option, exercisable at any time, of either reducing the Obligations by the principal amount of the purchase price or deferring the reduction of the Obligations until the actual receipt by Bank of cash therefor.

9.5 Bank's Liability for Collateral. So long as Bank complies with reasonable banking practices regarding the safekeeping of the Collateral in the possession or under the control of Bank, Bank shall not be liable or responsible for: (a) the safekeeping of the Collateral; (b) any loss or damage to the Collateral; (c) any diminution in the value of the Collateral; or (d) any act or default of any carrier, warehouseman, bailee, or other Person. Borrower bears all risk of loss, damage or destruction of the Collateral.

9.6 No Waiver; Remedies Cumulative. Bank's failure, at any time or times, to require strict performance by Borrower of any provision of this Agreement or any other Loan Document shall not waive, affect, or diminish any right of Bank thereafter to demand strict performance and compliance herewith or therewith. No waiver hereunder shall be effective unless signed by the party granting the waiver and then is only effective for the specific instance and purpose for which it is given. Bank's rights and remedies under this Agreement and the other Loan Documents are cumulative. Bank has all rights and remedies provided under the Code, by law, or in equity. Bank's exercise of one right or remedy is not an election and shall not preclude Bank from exercising any other remedy under this Agreement or other remedy available at law or in equity, and Bank's waiver of any Event of Default is not a continuing waiver. Bank's delay in exercising any remedy is not a waiver, election, or acquiescence.

9.7 Demand Waiver. Borrower waives demand, notice of default or dishonor, notice of payment and nonpayment, notice of any default, nonpayment at maturity, release, compromise, settlement, extension, or renewal of accounts, documents, instruments, chattel paper, and guarantees held by Bank on which Borrower is liable.

10 NOTICES

All notices, consents, requests, approvals, demands, or other communication by any party to this Agreement or any other Loan Document must be in writing and shall be deemed to have been validly served, given, or delivered: (a) upon the earlier of actual receipt and three (3) Business Days after deposit in the U.S. mail, first class, registered or certified mail return receipt requested, with proper postage prepaid; (b) upon transmission, when sent by electronic mail or facsimile transmission; (c) one (1) Business Day after deposit with a reputable overnight courier with all charges prepaid; or (d) when delivered, if hand-delivered by messenger, all of which shall be addressed to the party to be notified and sent to the address, facsimile number, or email address indicated below. Bank or Borrower may change its mailing or electronic mail address or facsimile number by giving the other party written notice thereof in accordance with the terms of this Section 10.

If to Borrower:	Spruce Biosciences, Inc.
If to Bank:	Silicon Valley Bank

11 CHOICE OF LAW, VENUE, JURY TRIAL WAIVER, AND JUDICIAL REFERENCE

Except as otherwise expressly provided in any of the Loan Documents, California law governs the Loan Documents without regard to principles of conflicts of law. Borrower and Bank each submit to the exclusive jurisdiction of the State and Federal courts in Santa Clara County, California; provided, however, that nothing in this Agreement shall be deemed to operate to preclude Bank from bringing suit or taking other legal action in any other jurisdiction to realize on the Collateral or any other security for the Obligations, or to enforce a judgment or other court order in favor of Bank. Borrower expressly submits and consents in advance to such jurisdiction in any action or suit commenced in any such court, and Borrower hereby waives any objection that it may have based upon lack of personal jurisdiction, improper venue, or forum non conveniens and hereby consents to the granting of such legal or equitable relief as is deemed appropriate by such court. Borrower hereby waives personal service of the summons, complaints, and other process issued in such action or suit and agrees that service of such summons, complaints, and other process may be made by registered or certified mail addressed to Borrower at the address set forth in, or subsequently provided by Borrower in accordance with, Section 10 of this Agreement and that service so made shall be deemed completed upon the earlier to occur of Borrower's actual receipt thereof or three (3) days after deposit in the U.S. mails, proper postage prepaid.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, BORROWER AND BANK EACH WAIVE THEIR RIGHT TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION ARISING OUT OF OR BASED UPON THIS AGREEMENT, THE LOAN DOCUMENTS OR ANY CONTEMPLATED TRANSACTION, INCLUDING CONTRACT, TORT, BREACH OF DUTY AND ALL OTHER CLAIMS. THIS WAIVER IS A MATERIAL INDUCEMENT FOR BOTH PARTIES TO ENTER INTO THIS AGREEMENT. EACH PARTY HAS REVIEWED THIS WAIVER WITH ITS COUNSEL.

WITHOUT INTENDING IN ANY WAY TO LIMIT THE PARTIES' AGREEMENT TO WAIVE THEIR RESPECTIVE RIGHT TO A TRIAL BY JURY, if the above waiver of the right to a trial by jury is not enforceable, the parties hereto agree that any and all disputes or controversies of any nature between them arising at any time shall be decided by a reference to a private judge, mutually selected by the parties (or, if they cannot agree, by the Presiding Judge of the Santa Clara County, California Superior Court) appointed in accordance with California Code of Civil Procedure Section 638 (or pursuant to comparable provisions of federal law if the dispute falls within the exclusive jurisdiction of the federal courts), sitting without a jury, in Santa Clara County, California; and the parties hereby submit to the jurisdiction of such court. The reference proceedings shall be conducted pursuant to and in accordance with the provisions of California Code of Civil Procedure §§ 638 through 645.1, inclusive. The private judge shall have the power, among others, to grant provisional relief, including without limitation, entering temporary restraining orders, issuing preliminary and permanent injunctions and appointing receivers. All such proceedings shall be closed to the public and confidential and all records relating thereto shall be permanently sealed. If during the course of any dispute, a party desires to seek provisional relief, but a judge has not been appointed at that point pursuant to the judicial reference procedures, then such party may apply to the Santa Clara County, California Superior Court for such relief. The proceeding before the private judge shall be conducted in the same manner as it would be before

a court under the rules of evidence applicable to judicial proceedings. The parties shall be entitled to discovery which shall be conducted in the same manner as it would be before a court under the rules of discovery applicable to judicial proceedings. The private judge shall oversee discovery and may enforce all discovery rules and orders applicable to judicial proceedings in the same manner as a trial court judge. The parties agree that the selected or appointed private judge shall have the power to decide all issues in the action or proceeding, whether of fact or of law, and shall report a statement of decision thereon pursuant to California Code of Civil Procedure § 644(a). Nothing in this paragraph shall limit the right of any party at any time to exercise self-help remedies, foreclose against collateral, or obtain provisional remedies. The private judge shall also determine all issues relating to the applicability, interpretation, and enforceability of this paragraph.

This Section 11 shall survive the termination of this Agreement.

12 GENERAL PROVISIONS

12.1 Termination Prior to Term Loan Maturity Date; Survival. All covenants, representations and warranties made in this Agreement shall continue in full force until this Agreement has terminated pursuant to its terms and all Obligations (other than inchoate indemnity obligations) have been satisfied. So long as Borrower has satisfied the Obligations (other than inchoate indemnity obligations, any obligations which, by their terms, are to survive termination of this Agreement and any Obligations under Bank Services Agreements that are required by Bank to be cash collateralized in accordance with Section 4.1 of this Agreement), this Agreement may be terminated prior to the Term Loan Maturity Date by Borrower, effective three (3) Business Days after written notice of termination is given to Bank. Those obligations that are expressly specified in this Agreement as surviving this Agreement's termination shall continue to survive notwithstanding this Agreement's termination.

12.2 Successors and Assigns. This Agreement binds and is for the benefit of the successors and permitted assigns of each party. Borrower may not assign this Agreement or any rights or obligations under it without Bank's prior written consent (which may be granted or withheld in Bank's discretion). Bank has the right, without the consent of or notice to Borrower, to sell, transfer, assign, negotiate, or grant participation in all or any part of, or any interest in, Bank's obligations, rights, and benefits under this Agreement and the other Loan Documents (other than the Warrant, as to which assignment, transfer and other such actions are governed by the terms thereof). Notwithstanding the foregoing, so long as no Event of Default shall have occurred and is continuing, Bank shall not assign its interest in the Loan Documents to any Person who in the reasonable estimation of Bank is (a) a direct competitor of Borrower, whether as an operating company or direct or indirect parent with voting control over such operating company, or (b) a vulture fund or distressed debt fund.

12.3 Indemnification. Borrower agrees to indemnify, defend and hold Bank and its directors, officers, employees, agents, attorneys, or any other Person affiliated with or representing Bank (each, an "**Indemnified Person**") harmless against: (i) all obligations, demands, claims, and liabilities (collectively, "**Claims**") claimed or asserted by any other party in connection with the transactions contemplated by the Loan Documents; and (ii) all losses or expenses (including Bank Expenses) in any way suffered, incurred, or paid by such Indemnified Person as a result of,

following from, consequential to, or arising from transactions between Bank and Borrower in connection with the transactions contemplated by the Loan Documents (including reasonable attorneys' fees and expenses), except for Claims, Bank Expenses and/or losses directly caused by such Indemnified Person's gross negligence or willful misconduct.

This Section 12.3 shall survive until all statutes of limitation with respect to the Claims, losses, and expenses for which indemnity is given shall have run.

12.4 Time of Essence. Time is of the essence for the performance of all Obligations in this Agreement.

12.5 Severability of Provisions. Each provision of this Agreement is severable from every other provision in determining the enforceability of any provision.

12.6 Correction of Loan Documents. Bank may correct patent errors and fill in any blanks in the Loan Documents consistent with the agreement of the parties so long as Bank provides Borrower with written notice of such correction and allows Borrower at least ten (10) days to object to such correction. In the event of such objection, such correction shall not be made except by an amendment signed by both Bank and Borrower.

12.7 Amendments in Writing; Waiver; Integration. No purported amendment or modification of any Loan Document, or waiver, discharge or termination of any obligation under any Loan Document, shall be enforceable or admissible unless, and only to the extent, expressly set forth in a writing signed by the party against which enforcement or admission is sought. Without limiting the generality of the foregoing, no oral promise or statement, nor any action, inaction, delay, failure to require performance or course of conduct shall operate as, or evidence, an amendment, supplement or waiver or have any other effect on any Loan Document. Any waiver granted shall be limited to the specific circumstance expressly described in it, and shall not apply to any subsequent or other circumstance, whether similar or dissimilar, or give rise to, or evidence, any obligation or commitment to grant any further waiver. The Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of the Loan Documents merge into the Loan Documents.

12.8 Counterparts. This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Agreement.

12.9 Confidentiality. In handling any confidential information, Bank shall exercise the same degree of care that it exercises for its own proprietary information, but disclosure of information may be made: (a) to Bank's Subsidiaries or Affiliates (such Subsidiaries and Affiliates, together with Bank, collectively, "**Bank Entities**"); (b) to prospective transferees or purchasers of any interest in the Credit Extensions (provided, however, that any prospective transferee or purchaser shall have entered into an agreement containing provisions substantially the same as those in this Section); (c) as required by law, regulation, subpoena, or other order; (d) to Bank's regulators or as otherwise required in connection with Bank's examination or audit; (e) as Bank considers appropriate in exercising remedies under the Loan Documents; and (f) to third-

party service providers of Bank so long as such service providers have executed a confidentiality agreement with Bank with terms no less restrictive than those contained herein. Confidential information does not include information that is either: (i) in the public domain or in Bank's possession when disclosed to Bank, or becomes part of the public domain (other than as a result of its disclosure by Bank in violation of this Agreement) after disclosure to Bank; or (ii) disclosed to Bank by a third party, if Bank does not know that the third party is prohibited from disclosing the information.

Bank Entities may use confidential information for the development of databases, reporting purposes, and market analysis so long as such confidential information is aggregated and anonymized prior to distribution unless otherwise expressly permitted by Borrower. The provisions of the immediately preceding sentence shall survive the termination of this Agreement.

12.10 Attorneys' Fees, Costs and Expenses. In any action or proceeding between Borrower and Bank arising out of or relating to the Loan Documents, the prevailing party shall be entitled to recover its reasonable attorneys' fees and other costs and expenses incurred, in addition to any other relief to which it may be entitled.

12.11 Electronic Execution of Documents. The words "execution," "signed," "signature" and words of like import in any Loan Document shall be deemed to include electronic signatures or the keeping of records in electronic form, each of which shall be of the same legal effect, validity and enforceability as a manually executed signature or the use of a paper-based recordkeeping systems, as the case may be, to the extent and as provided for in any applicable law, including, without limitation, any state law based on the Uniform Electronic Transactions Act.

12.12 Captions. The headings used in this Agreement are for convenience only and shall not affect the interpretation of this Agreement.

12.13 Construction of Agreement. The parties mutually acknowledge that they and their attorneys have participated in the preparation and negotiation of this Agreement. In cases of uncertainty this Agreement shall be construed without regard to which of the parties caused the uncertainty to exist.

12.14 Relationship. The relationship of the parties to this Agreement is determined solely by the provisions of this Agreement. The parties do not intend to create any agency, partnership, joint venture, trust, fiduciary or other relationship with duties or incidents different from those of parties to an arm's-length contract.

12.15 Third Parties. Nothing in this Agreement, whether express or implied, is intended to: (a) confer any benefits, rights or remedies under or by reason of this Agreement on any persons other than the express parties to it and their respective permitted successors and assigns; (b) relieve or discharge the obligation or liability of any person not an express party to this Agreement; or (c) give any person not an express party to this Agreement any right of subrogation or action against any party to this Agreement.

13 DEFINITIONS

13.1 Definitions. As used in the Loan Documents, the word "shall" is mandatory, the word "may" is permissive, the word "or" is not exclusive, the words "includes" and "including" are not limiting, the singular includes the plural, and numbers denoting amounts that are set off in brackets are negative. As used in this Agreement, the following capitalized terms have the following meanings:

"**Account**" is any "account" as defined in the Code with such additions to such term as may hereafter be made, and includes, without limitation, all accounts receivable and other sums owing to Borrower.

"**Account Debtor**" is any "account debtor" as defined in the Code with such additions to such term as may hereafter be made.

"**Affiliate**" is, with respect to any Person, each other Person that owns or controls directly or indirectly the Person, any Person that controls or is controlled by or is under common control with the Person, and each of that Person's senior executive officers, directors, partners and, for any Person that is a limited liability company, that Person's managers and members.

"**Agreement**" is defined in the preamble hereof.

"**Authorized Signer**" is any individual listed in Borrower's Borrowing Resolution who is authorized to execute the Loan Documents, including any Payment/Advance Form, on behalf of Borrower.

"**Bank**" is defined in the preamble hereof.

"**Bank Entities**" is defined in Section 12.9.

"**Bank Expenses**" are all audit fees and expenses, costs, and expenses (including reasonable attorneys' fees and expenses) for preparing, amending, negotiating, administering, defending and enforcing the Loan Documents (including, without limitation, those incurred in connection with appeals or Insolvency Proceedings) or otherwise incurred with respect to Borrower.

"**Bank Services**" are any products, credit services, and/or financial accommodations previously, now, or hereafter provided to Borrower or any of its Subsidiaries by Bank or any Bank Affiliate, including, without limitation, any letters of credit, cash management services (including, without limitation, merchant services, direct deposit of payroll, business credit cards, and check cashing services), interest rate swap arrangements, and foreign exchange services as any such products or services may be identified in Bank's various agreements related thereto (each, a "**Bank Services Agreement**").

"**Borrower**" is defined in the preamble hereof.

"**Borrower's Books**" are all Borrower's books and records including ledgers, federal and state tax returns, records regarding Borrower's assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

"**Borrowing Resolutions**" are, with respect to any Person, those resolutions substantially in the form attached hereto as Exhibit C.

"**Business Day**" is any day that is not a Saturday, Sunday or a day on which Bank is closed.

"**Cash Equivalents**" means (a) marketable direct obligations issued or unconditionally guaranteed by the United States or any agency or any State thereof having maturities of not more than one (1) year from the date of acquisition; (b) commercial paper maturing no more than one (1) year after its creation and having the highest rating from either Standard & Poor's Ratings Group or Moody's Investors Service, Inc.; (c) Bank's certificates of deposit issued maturing no more than one (1) year after issue; and (d) money market funds at least ninety-five percent (95%) of the assets of which constitute Cash Equivalents of the kinds described in clauses (a) through (c) of this definition.

"**Change in Control**" means (a) at any time, any "person" or "group" (as such terms are used in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**")), shall become, or obtain rights (whether by means or warrants, options or otherwise) to become, the "beneficial owner" (as defined in Rules 13(d)-3 and 13(d)-5 under the Exchange Act), directly or indirectly, of 49% or more of the ordinary voting power for the election of directors of Borrower (determined on a fully diluted basis) other than by the sale of Borrower's equity securities in a public offering or to venture capital, strategic or private equity investors so long as Borrower identifies to Bank the venture capital or private equity investors at least seven (7) Business Days prior to the closing of the transaction and provides to Bank a description of the material terms of the transaction; (b) during any period of 12 consecutive months, a majority of the members of the board of directors or other equivalent governing body of Borrower cease to be composed of individuals (i) who were members of that board or equivalent governing body on the first day of such period, (ii) whose election or nomination to that board or equivalent governing body was approved by individuals referred to in clause (i) above constituting at the time of such election or nomination at least a majority of that board or equivalent governing body or (iii) whose election or nomination to that board or other equivalent governing body was approved by individuals referred to in clauses (i) and (ii) above constituting at the time of such election or nomination at least a majority of that board or equivalent governing body; (c) venture capital investors cease to own at least 25% of the voting securities of Borrower; or (d) at any time, Borrower shall cease to own and control, of record and beneficially, directly or indirectly, 100% of each class of outstanding capital stock of each subsidiary of Borrower free and clear of all Liens (except Liens created by this Agreement) unless such Subsidiary is dissolved and all assets are transferred to Borrower.

"**Claims**" is defined in Section 12.3.

"**Code**" is the Uniform Commercial Code, as the same may, from time to time, be enacted and in effect in the State of California; provided, that, to the extent that the Code is used to define any term herein or in any Loan Document and such term is defined differently in different Articles or Divisions of the Code, the definition of such term contained in Article or Division 9 shall

govern; provided further, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection, or priority of, or remedies with respect to, Bank's Lien on any Collateral is governed by the Uniform Commercial Code in effect in a jurisdiction other than the State of California, the term "Code" shall mean the Uniform Commercial Code as enacted and in effect in such other jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority, or remedies and for purposes of definitions relating to such provisions.

"**Collateral**" is any and all properties, rights and assets of Borrower described on Exhibit A.

"**Collateral Account**" is any Deposit Account, Securities Account, or Commodity Account.

"**Commodity Account**" is any "**commodity account**" as defined in the Code with such additions to such term as may hereafter be made.

"**Compliance Statement**" is that certain statement in the form attached hereto as Exhibit D.

"**Contingent Obligation**" is, for any Person, any direct or indirect liability, contingent or not, of that Person for (a) any indebtedness, lease, dividend, letter of credit or other obligation of another such as an obligation, in each case, directly or indirectly guaranteed, endorsed, co-made, discounted or sold with recourse by that Person, or for which that Person is directly or indirectly liable; (b) any obligations for undrawn letters of credit for the account of that Person; and (c) all obligations from any interest rate, currency or commodity swap agreement, interest rate cap or collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; but "Contingent Obligation" does not include endorsements in the ordinary course of business. The amount of a Contingent Obligation is the stated or determined amount of the primary obligation for which the Contingent Obligation is made or, if not determinable, the maximum reasonably anticipated liability for it determined by the Person in good faith; but the amount may not exceed the maximum of the obligations under any guarantee or other support arrangement.

"**Control Agreement**" is any control agreement entered into among the depository institution at which Borrower maintains a Deposit Account or the securities intermediary or commodity intermediary at which Borrower maintains a Securities Account or a Commodity Account, Borrower, and Bank pursuant to which Bank obtains control (within the meaning of the Code) over such Deposit Account, Securities Account, or Commodity Account.

"**Copyrights**" are any and all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret.

"**Credit Extension**" is any Term Loan or any other extension of credit by Bank for Borrower's benefit under this Agreement.

"**Default Rate**" is defined in Section 2.3(b).

"**Deposit Account**" is any "deposit account" as defined in the Code with such additions to such term as may hereafter be made.

"**Designated Deposit Account**" is the account, account number ****0754, maintained by Borrower with Bank.

"**Division**" means, in reference to any Person which is an entity, the division of such Person into two (2) or more separate Persons, with the dividing Person either continuing or terminating its existence as part of such division, including, without limitation, as contemplated under Section 18-217 of the Delaware Limited Liability Company Act for limited liability companies formed under Delaware law, or any analogous action taken pursuant to any other applicable law with respect to any corporation, limited liability company, partnership or other entity.

"**Dollars,**" "**dollars**" or use of the sign "**$**" means only lawful money of the United States and not any other currency, regardless of whether that currency uses the "$" sign to denote its currency or may be readily converted into lawful money of the United States.

"**Dollar Equivalent**" is, at any time, (a) with respect to any amount denominated in Dollars, such amount, and (b) with respect to any amount denominated in a Foreign Currency, the equivalent amount therefor in Dollars as determined by Bank at such time on the basis of the then-prevailing rate of exchange in San Francisco, California, for sales of the Foreign Currency for transfer to the country issuing such Foreign Currency.

"**Domestic Subsidiary**" means a Subsidiary organized under the laws of the United States or any state or territory thereof or the District of Columbia.

"**Effective Date**" is defined in the preamble hereof.

"**Equipment**" is all "equipment" as defined in the Code with such additions to such term as may hereafter be made, and includes without limitation all machinery, fixtures, goods, vehicles (including motor vehicles and trailers), and any interest in any of the foregoing.

"**ERISA**" is the Employee Retirement Income Security Act of 1974, and its regulations.

"**Event of Default**" is defined in Section 8.

"**Exchange Act**" is the Securities Exchange Act of 1934, as amended.

"**Final Payment**" is, for each Term Loan, a payment (in addition to and not a substitution for the regular monthly payments of principal plus accrued interest) due on the earlier of (a) the Term Loan Maturity Date or (b) the prepayment or acceleration of the Term Loans, equal to the original principal amount of such Term Loan multiplied by six percent (6.00%) and which shall not exceed Two Hundred Seventy Thousand Dollars ($270,000) in the aggregate.

"**Financial Statement Repository**" is Bank's e-mail address or such other means of collecting information approved and designated by Bank after providing notice thereof to Borrower from time to time.

"**First Tranche**" is defined in Section 2.1.1(a).

"**Foreign Currency**" means lawful money of a country other than the United States.

"**Foreign Subsidiary**" means any Subsidiary which is not a Domestic Subsidiary.

"**Funding Date**" is any date on which a Credit Extension is made to or for the account of Borrower which shall be a Business Day.

"**FX Contract**" is any foreign exchange contract by and between Borrower and Bank under which Borrower commits to purchase from or sell to Bank a specific amount of Foreign Currency on a specified date.

"**GAAP**" is generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other Person as may be approved by a significant segment of the accounting profession, which are applicable to the circumstances as of the date of determination.

"**General Intangibles**" is all "general intangibles" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation, all Intellectual Property, claims, income and other tax refunds, security and other deposits, payment intangibles, contract rights, options to purchase or sell real or personal property, rights in all litigation presently or hereafter pending (whether in contract, tort or otherwise), insurance policies (including without limitation key man, property damage, and business interruption insurance), payments of insurance and rights to payment of any kind.

"**Governmental Approval**" is any consent, authorization, approval, order, license, franchise, permit, certificate, accreditation, registration, filing or notice, of, issued by, from or to, or other act by or in respect of, any Governmental Authority.

"**Governmental Authority**" is any nation or government, any state or other political subdivision thereof, any agency, authority, instrumentality, regulatory body, court, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative functions of or pertaining to government, any securities exchange and any self-regulatory organization.

"**Indebtedness**" is (a) indebtedness for borrowed money or the deferred price of property or services, such as reimbursement and other obligations for surety bonds and letters of credit, (b) obligations evidenced by notes, bonds, debentures or similar instruments, (c) capital lease obligations, and (d) Contingent Obligations.

"**Indemnified Person**" is defined in Section 12.3.

"**Insolvency Proceeding**" is any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions, extensions generally with its creditors, or proceedings seeking reorganization, arrangement, or other relief

"**Intellectual Property**" means, with respect to any Person, all of such Person's right, title, and interest in and to the following, whether now existing and/or owned, or hereafter acquired or created:

(a) its Copyrights, Trademarks and Patents;

(b) any and all trade secrets and trade secret rights, including, without limitation, any rights to unpatented inventions, know-how, operating manuals;

(c) any and all source code;

(d) any and all design rights which may be available to such Person;

(e) any and all claims for damages by way of past, present and future infringement of any of the foregoing, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the Intellectual Property rights identified above; and

(f) all amendments, renewals and extensions of any of the Copyrights, Trademarks or Patents.

"**Inventory**" is all "inventory" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation all merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products, including without limitation such inventory as is temporarily out of Borrower's custody or possession or in transit and including any returned goods and any documents of title representing any of the above.

"**Investment**" is any beneficial ownership interest in any Person (including stock, partnership interest or other securities), and any loan, advance or capital contribution to any Person.

"**Key Person**" is Borrower's Chief Executive Officer, who is Richard King as of the Effective Date.

"**Letter of Credit**" is a standby or commercial letter of credit issued by Bank upon request of Borrower based upon an application, guarantee, indemnity, or similar agreement.

"**Lien**" is a claim, mortgage, deed of trust, levy, charge, pledge, security interest or other encumbrance of any kind, whether voluntarily incurred or arising by operation of law or otherwise against any property.

"**Loan Documents**" are, collectively, this Agreement and any schedules, exhibits, certificates, notices, and any other documents related to this Agreement, the Warrant, any Bank Services Agreement, any subordination agreement, any note, or notes or guaranties executed by Borrower or any guarantor, and any other present or future agreement by Borrower and/or any guarantor with or for the benefit of Bank in connection with this Agreement or Bank Services, all as amended, restated, or otherwise modified.

"**Material Adverse Change**" is (a) a material impairment in the perfection or priority of Bank's Lien in the Collateral or in the value of such Collateral; (b) a material adverse change in the business, operations, or condition (financial or otherwise) of Borrower; or (c) a material impairment of the prospect of repayment of any portion of the Obligations.

"**Monthly Financial Statements**" is defined in Section 6.2(a).

"**Obligations**" are Borrower's obligations to pay when due any debts, principal, interest, fees, Bank Expenses, and other amounts Borrower owes Bank now or later, whether under this Agreement, the other Loan Documents (other than the Warrant), or otherwise (other than the Warrant), including, without limitation, all obligations relating to letters of credit (including reimbursement obligations for drawn and undrawn letters of credit), cash management services, and foreign exchange contracts, if any, and including interest accruing after Insolvency Proceedings begin and debts, liabilities, or obligations of Borrower assigned to Bank, and to perform Borrower's duties under the Loan Documents (other than the Warrant).

"**Operating Documents**" are, for any Person, such Person's formation documents, as certified by the Secretary of State (or equivalent agency) of such Person's jurisdiction of organization on a date that is no earlier than thirty (30) days prior to the Effective Date, and, (a) if such Person is a corporation, its bylaws in current form, (b) if such Person is a limited liability company, its limited liability company agreement (or similar agreement), and (c) if such Person is a partnership, its partnership agreement (or similar agreement), each of the foregoing with all current amendments or modifications thereto.

"**Patents**" means all patents, patent applications and like protections including without limitation improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same.

"**Payment/Advance Form**" is that certain form attached hereto as Exhibit B.

"**Perfection Certificate**" is defined in Section 5.1.

"**Permitted Indebtedness**" is:

(a) Borrower's Indebtedness to Bank under this Agreement and the other Loan Documents;

(b) Indebtedness existing on the Effective Date and shown on the Perfection Certificate;

(c) Subordinated Debt;

(d) unsecured Indebtedness to trade creditors incurred in the ordinary course of business;

(e) Indebtedness incurred as a result of endorsing negotiable instruments received in the ordinary course of business;

(f) Indebtedness secured by Liens permitted under clauses (a) and (c) of the definition of "Permitted Liens" hereunder;

(g) other Indebtedness not enumerated under this defined term and not exceeding Twenty Thousand Dollars ($20,000) in the aggregate outstanding at any time; and

(h) extensions, refinancings, modifications, amendments and restatements of any items of Permitted Indebtedness (a) through (g) above, provided that the principal amount thereof is not increased or the terms thereof are not modified to impose more burdensome terms upon Borrower or its Subsidiary, as the case may be.

"**Permitted Investments**" are:

(a) Investments (including, without limitation, Subsidiaries) existing on the Effective Date and shown on the Perfection Certificate;

(b) (i) Investments consisting of Cash Equivalents, and (ii) any Investments permitted by Borrower's investment policy, as amended from time to time, provided that such investment policy (and any such amendment thereto) has been approved in writing by Bank;

(c) Investments consisting of the endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of Borrower;

(d) Investments consisting of deposit accounts in which Bank has a perfected security interest;

(e) Investments accepted in connection with Transfers permitted by Section 7.1;

(f) Investments (i) by Borrower in Subsidiaries not to exceed Fifty Thousand Dollars ($50,000) in the aggregate in any fiscal year and (ii) by Subsidiaries in other Subsidiaries or in Borrower;

(g) The creation of a Subsidiary for the purpose of consummating a merger transaction in compliance with Section 7.3 of this Agreement, so long as any Investments (including the costs of formation) in any such Subsidiary are limited by clause (f) of the definition of Permitted Investments;

(h) Investments consisting of (i) travel advances and employee relocation loans and other employee loans and advances in the ordinary course of business, and (ii) loans to employees, officers or directors relating to the purchase of equity securities of Borrower or its Subsidiaries pursuant to employee stock purchase plans or agreements approved by Borrower's Board of Directors;

(i) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of business;

(j) Investments consisting of notes receivable of, or prepaid royalties and other credit extensions, to customers and suppliers who are not Affiliates, in the ordinary course of business; provided that this paragraph (j) shall not apply to Investments of Borrower in any Subsidiary; and

(k) Investments in joint ventures or strategic alliances in the ordinary course of Borrower's business consisting of the non-exclusive licensing of technology, the development of technology or the providing of technical support, provided that any cash investments by Borrower do not exceed Fifty Thousand Dollars ($50,000) in the aggregate in any fiscal year.

"**Permitted Liens**" are:

(a) Liens existing on the Effective Date and shown on the Perfection Certificate or arising under this Agreement and the other Loan Documents;

(b) Liens for taxes, fees, assessments or other government charges or levies, either (i) not due and payable or (ii) being contested in good faith and for which Borrower maintains adequate reserves on its Books, provided that no notice of any such Lien has been filed or recorded under the Internal Revenue Code of 1986, as amended, and the Treasury Regulations adopted thereunder;

(c) Purchase money Liens (i) and Liens (including capital leases) on Equipment acquired or held by Borrower incurred for financing the acquisition of the Equipment securing no more than One Hundred Thousand Dollars ($100,000) in the aggregate amount outstanding, or (ii) existing on Equipment when acquired, if the Lien is confined to the property and improvements and the proceeds of the Equipment;

(d) Liens of carriers, warehousemen, suppliers, or other Persons that are possessory in nature arising in the ordinary course of business so long as such Liens attach only to Inventory, securing liabilities in the aggregate amount not to exceed Fifty Thousand Dollars ($50,000) and which are not delinquent or remain payable without penalty or which are being contested in good faith and by appropriate proceedings which proceedings have the effect of preventing the forfeiture or sale of the property subject thereto;

(e) Liens to secure payment of workers' compensation, employment insurance, old-age pensions, social security and other like obligations incurred in the ordinary course of business (other than Liens imposed by ERISA);

(f) Liens incurred in the extension, renewal or refinancing of the indebtedness secured by Liens described in (a) through (c), but any extension, renewal or replacement Lien must be limited to the property encumbered by the existing Lien and the principal amount of the indebtedness may not increase;

(g) leases or subleases of real property granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), and leases, subleases, non-exclusive licenses or sublicenses of personal property (other than Intellectual Property) granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), if the leases, subleases, licenses and sublicenses do not prohibit granting Bank a security interest therein;

(h) licenses of Intellectual Property permitted under Section 7.1(f);

(i) Liens arising from attachments or judgments, orders, or decrees in circumstances not constituting an Event of Default under Sections 8.4 and 8.7; and

(j) Liens in favor of other financial institutions arising in connection with Borrower's deposit and/or securities accounts held at such institutions, provided that Bank has a perfected security interest in the amounts held in such deposit and/or securities accounts.

"**Person**" is any individual, sole proprietorship, partnership, limited liability company, joint venture, company, trust, unincorporated organization, association, corporation, institution, public benefit corporation, firm, joint stock company, estate, entity or government agency.

"**Prepayment Fee**" shall be an amount equal to: (i) if the prepayment date is before the first anniversary of the Effective Date, three percent (3.0%) of the aggregate outstanding principal balance (or three percent (3.0%) of the Term Loan Amount if a Term Loan in the Second Tranche has been made), (ii) if the prepayment date is on or after the first anniversary of the Effective Date but before the second anniversary of the Effective Date, two percent (2.00%) of the aggregate outstanding principal balance (or two percent (2.0%) of the Term Loan Amount if a Term Loan in the Second Tranche has been made), and (iii) if the prepayment date is on or after the second anniversary of the Effective Date, one percent (1.00%) of the aggregate outstanding principal balance (or one percent (1.0%) of the Term Loan Amount if a Term Loan in the Second Tranche has been made); provided, however, that if the Term Loans are prepaid through another refinance credit facility provided to Borrower by Bank, then the "Prepayment Fee" shall be $0.

"**Prime Rate**" is the rate of interest per annum from time to time published in the money rates section of The Wall Street Journal or any successor publication thereto as the "prime rate" then in effect; provided that, in the event such rate of interest is less than zero, such rate shall be deemed to be zero for purposes of this Agreement; and provided further that if such rate of interest, as set forth from time to time in the money rates section of The Wall Street Journal, becomes unavailable for any reason as determined by Bank, the "Prime Rate" shall mean the rate of interest per annum announced by Bank as its prime rate in effect at its principal office in the State of California (such Bank announced Prime Rate not being intended to be the lowest rate of interest charged by Bank in connection with extensions of credit to debtors).

"**Registered Organization**" is any "registered organization" as defined in the Code with such additions to such term as may hereafter be made.

"**Requirement of Law**" is as to any Person, the organizational or governing documents of such Person, and any law (statutory or common), treaty, rule or regulation or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"**Responsible Officer**" is any of the Chief Executive Officer, President, Chief Financial Officer and Controller of Borrower.

"**Restricted License**" is any material license or other material agreement with respect to which Borrower is the licensee (a) that prohibits or otherwise restricts Borrower from granting a security interest in Borrower's interest in such license or agreement or any other property, or (b) for which a default under or termination of could interfere with the Bank's right to sell any Collateral.

"**SEC**" shall mean the Securities and Exchange Commission, any successor thereto, and any analogous Governmental Authority.

"**Second Tranche**" is defined in Section 2.1.1(a).

"**Second Tranche Condition**" is defined in Section 2.1.1(a).

"**Securities Account**" is any "securities account" as defined in the Code with such additions to such term as may hereafter be made.

"**Subordinated Debt**" is indebtedness incurred by Borrower subordinated to all of Borrower's now or hereafter indebtedness to Bank (pursuant to a subordination, intercreditor, or other similar agreement in form and substance satisfactory to Bank entered into between Bank and the other creditor), on terms acceptable to Bank.

"**Subsidiary**" is, as to any Person, a corporation, partnership, limited liability company or other entity of which shares of stock or other ownership interests having ordinary voting power (other than stock or such other ownership interests having such power only by reason of the happening of a contingency) to elect a majority of the board of directors or other managers of such corporation, partnership or other entity are at the time owned, or the management of which is otherwise controlled, directly or indirectly through one or more intermediaries, or both, by such Person. Unless the context otherwise requires, each reference to a Subsidiary herein shall be a reference to a Subsidiary of Borrower.

"**Term Loan**" is a loan made by Bank pursuant to the terms of Section 2.1.1 hereof.

"**Term Loan Amount**" is an amount equal to Four Million Five Hundred Thousand Dollars ($4,500,000).

"**Term Loan Availability End Date**" is (i) for the First Tranche, five (5) Business Days after the Effective Date, and (ii) for the Second Tranche, the earlier of December 31, 2019, or an Event of Default.

"**Term Loan Maturity Date**" is (i) for the Term Loan in the First Tranche, its twenty-fourth (24th) (or twenty-first (21') if a Term Loan in the Second Tranche has been made) Term Loan Payment Date but no later than March 1, 2022, and (ii) for the each Term Loan in the Second Tranche, its twenty-first (21') Term Loan Payment Date but no later than March 1, 2022.

"**Term Loan Payment Date**" is defined in Section 2.1.1(b).

"**Trademarks**" means any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Borrower connected with and symbolized by such trademarks.

"**Transfer**" is defined in Section 7.1.

"**Warrant**" is that certain Warrant to Purchase Common Stock dated as of the Effective Date executed by Borrower in favor of Bank, as amended, modified, supplemented and/or restated from time to time.

[Signature page follows.]

IN WITNESS WHEREOF, the parties hereto have caused this Loan and Security Agreement to be executed as of the Effective Date.

BORROWER:

SPRUCE BIOSCIENCES, INC.

By /s/ Richard King
Name: Richard King
Title: Chief Executive Officer

BANK:

SILICON VALLEY BANK

By /s/ Shawn Parry
Name: Shawn Parry
Title: Director

EXHIBIT A — COLLATERAL DESCRIPTION

The Collateral consists of all of Borrower's right, title and interest in and to the following personal property:

All goods, Accounts (including health-care receivables), Equipment, Inventory, contract rights or rights to payment of money, leases, license agreements, franchise agreements, General Intangibles (except as provided below), commercial tort claims, documents, instruments (including any promissory notes), chattel paper (whether tangible or electronic), cash, deposit accounts, fixtures, letters of credit rights (whether or not the letter of credit is evidenced by a writing), securities, and all other investment property, supporting obligations, and financial assets, whether now owned or existing or hereafter acquired or created, wherever located; and all Borrower's Books relating to the foregoing, and any and all claims, rights and interests in any of the above and all substitutions for, additions, attachments, accessories, accessions and improvements to and replacements, products, proceeds and insurance proceeds of any or all of the foregoing.

Notwithstanding the foregoing, the Collateral does not include any of the following, whether now existing or hereafter acquired or created: (a) more than 65% of the presently existing and hereafter arising issued and outstanding shares of capital stock owned by Borrower of any Foreign Subsidiary which shares entitle the holder thereof to vote for directors or any other matter, (b) any interest of Borrower as a lessee or sublessee under a real property lease; (c) rights held under a license that are not assignable by their terms without the consent of the licensor thereof (but only to the extent such restriction on assignment is enforceable under applicable law); (d) any interest of Borrower as a lessee under an Equipment lease if Borrower is prohibited by the terms of such lease from granting a security interest in such lease or under which such an assignment or Lien would cause a default to occur under such lease; *provided*, *however*, that upon termination of such prohibition, such interest shall immediately become Collateral without any action by Borrower or Bank; and (e) any Intellectual Property; provided, however, the Collateral shall include all Accounts and all proceeds of Intellectual Property. If a judicial authority (including a U.S. Bankruptcy Court) would hold that a security interest in the underlying Intellectual Property is necessary to have a security interest in such Accounts and such property that are proceeds of Intellectual Property, then the Collateral shall automatically, and effective as of the Effective Date, include the Intellectual Property to the extent necessary to permit perfection of Bank's security interest in such Accounts and such other property of Borrower that are proceeds of the Intellectual Property.

Pursuant to the terms of a certain negative pledge arrangement with Bank, Borrower has agreed not to encumber any of its Intellectual Property, except pursuant to such agreement, without Bank's prior written consent.

EXHIBIT B — LOAN PAYMENT/ADVANCE REQUEST FORM

DEADLINE FOR SAME DAY PROCESSING IS NOON PACIFIC TIME

Fax To: Date: _____

LOAN PAYMENT:

Spruce Biosciences, Inc.

From Account # ---------- (Deposit Account #)

To Account # _____ (Loan Account #)

Principal $ _____ and/or Interest $ _____

Authorized Signature:_____ Phone Number:_____

Print Name/Title:_____

LOAN ADVANCE

Complete *Outgoing Wire Request* section below if all or a portion of the funds from this loan advance are for an outgoing wire.

From Account #_____ (Loan Account #)

To Account #_____ (Deposit Account #)

Amount of Advance $_____

All Borrower's representations and warranties in the Loan and Security Agreement are true, correct and complete in all material respects on the date of the request for an advance provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date:

Authorized Signature:_____ Phone Number:_____

Print Name/Title:_____

OUTGOING WIRE REQUEST:

Complete only if all or a portion of funds from the loan advance above is to be wired.

Deadline for same day processing is noon, Pacific Time

Beneficiary Name:_____ Amount of Wire: $_____

Beneficiary Bank:_____ Account Number:_____

City and State:_____

Beneficiary Bank Transit (ABA) #:_____ Beneficiary Bank Code (Swift, Sort, Chip, etc.):_____

(For International Wire Only)

Intermediary Bank:_____ Transit (ABA) #:_____

For Future Credit to:_____

Special Instruction:_____

By signing below, I (we) acknowledge and agree that my (our) funds transfer request shall be processed in accordance with and subject to the terms and conditions set forth in the agreements(s) covering funds transfer service(s), which agreements(s) were previously received and executed by me (us).

Authorized Signature:_____ 2nd Signature (if required):_____

Print Name/Title:_____ Print Name/Title:_____

Telephone #:_____

EXHIBIT C

CORPORATE BORROWING CERTIFICATE

BORROWER: **Spruce Biosciences, Inc.** **DATE**:_____
BANK: **Silicon Valley Bank**

I hereby certify on behalf of Borrower as follows, as of the date set forth above:

1. I am the Secretary of the Borrower. My title is as set forth below.

2. Borrower's exact legal name is set forth above. Borrower is a corporation existing under the laws of the State of Delaware.

3. Attached hereto as Exhibit A is a true, correct and complete copy of Borrower's Certificate of Incorporation (including amendments), as filed with the Secretary of State of the State of Delaware. Such Certificate of Incorporation has not been amended, annulled, rescinded, revoked or supplemented, and remains in full force and effect as of the date hereof. Attached hereto as Exhibit B is a true, correct and complete copy of Borrower's Bylaws (including amendments).

4. The following resolutions were duly and validly adopted by Borrower's Board of Directors, including the affirmative vote of a majority of the Series A Directors, at a duly held meeting of such directors (or pursuant to a unanimous written consent or other authorized corporate action). Such resolutions are in full force and effect as of the date hereof and have not been in any way modified, repealed, rescinded, amended or revoked, and Silicon Valley Bank ("**Bank**") may rely on them until Bank receives written notice of revocation from Borrower.

RESOLVED, that **any one** of the following officers or employees of Borrower, whose names and titles are below, may act on behalf of Borrower:

Name	Title	Authorized to Add or Remove Signatories
Richard King	Chief Executive Officer	☒
Michael Gray	Executive Chairman (Board Member)	☐
_____	_____	☐
_____	_____	☐

RESOLVED FURTHER, that **any one** of the persons designated above with a checked box beside his or her name may, from time to time, add or remove any individuals to and from the above list of persons authorized to act on behalf of Borrower.

RESOLVED FURTHER, that such individuals may, on behalf of Borrower:

Borrow Money. Borrow money from Silicon Valley Bank ("Bank").

Execute Loan Documents. Execute any loan documents Bank requires.

Grant Security. Grant Bank a security interest in any of Borrower's assets other than intellectual property, provided, however, the grant of a security interest to Bank shall include all accounts and all proceeds of intellectual property.

Negotiate Items. Negotiate or discount all drafts, trade acceptances, promissory notes, or other indebtedness in which Borrower has an interest and receive cash or otherwise use the proceeds.

Letters of Credit. Apply for letters of credit from Bank.

Foreign Exchange Contracts. Execute spot or forward foreign exchange contracts.

Issue Warrants. Issue warrants for Borrower's capital stock.

Further Acts. Designate other individuals to request advances, pay fees and costs and execute other documents or agreements (including documents or agreement that waive Borrowers right to a jury trial) they believe to be necessary to effectuate such resolutions.

RESOLVED FURTHER, that all acts authorized by the above resolutions and any prior acts relating thereto are ratified.

5. The persons listed above are Borrower's officers or employees with their titles shown next to their names.

6. On behalf of Borrower, I agree to execute this letter by electronic means and I recognize and accept the use of electronic signatures and records by any other party or addressee hereto in connection with the execution and storage hereof.

By: _____
Name: Kenneth Guernsey
Title: Secretary

EXHIBIT D

COMPLIANCE CERTIFICATE

TO: SILICON VALLEY BANK Date:_____
FROM: SPRUCE BIOSCIENCES. INC.

Under the terms and conditions of the Loan and Security Agreement between Borrower and Bank dated as of the Effective Date (the "**Agreement**"), Borrower is in complete compliance for the period ending with all required covenants except as noted below. Attached are the required documents evidencing such compliance, except as explained in an accompanying letter or footnotes. Capitalized terms used but not otherwise defined herein shall have the meanings given them in the Agreement.

Please indicate compliance status by circling Yes/No under "Complies" column.

Reporting Covenants	**Required**	**Complies**
Monthly financial statements (consolidated balance sheet, statement of cash flows, and income statement) with Compliance Statement	Monthly within 30 days	Yes No
Annual financial statements (CPA Audited) + CC	Commencing with 2019 fiscal year, to the extent required by Board, FYE within 180 days	Yes No
Annual Projections	FYE within 30 days; and more frequently as updated	Yes No
10-Q, 10-K and 8-K	Within 5 days after filing with SEC	Yes No

Other Matters

Have there been any amendments of or other changes to the Operating Documents of Borrower or any of its Subsidiaries? If yes, provide copies of any such amendments or changes with this Compliance Statement.	Yes	No
Have there been any material amendments of or other material changes to the capitalization table of Borrower or any of its Subsidiaries (excluding, for the avoidance of doubt, changes relating to stock options and issuances)? If yes, provide copies of any such amendments or changes with this Compliance Statement.	Yes	No

The following are the exceptions with respect to the statements above: (If no exceptions exist, state "No exceptions to note.")

_____

_____

Deferral Agreement

Deferral Agreement Effective Date:	April 2, 2020
Loan Agreement Date *(use restated date if applicable):*	September 23, 2019
Borrower:	SPRUCE BIOSCIENCES, INC. ☐ If this box is checked, additional Borrowers ("**Additional Borrowers**") are listed in the **Annex** attached hereto (Borrower and such Additional Borrowers, collectively, "**Borrower**").
Loan Agreement:	That certain Loan and Security Agreement, dated as of the Loan Agreement Date, between Borrower, Additional Borrowers, if any, and Silicon Valley Bank ("**Bank**"), as amended, restated or otherwise modified and in effect from time to time.
Guarantor(s) or Pledgor(s):	☐ If this box is checked, the obligations of Borrower are guaranteed or secured by a pledge of assets and the Consent and Ratification attached hereto shall apply and must be completed for each Guarantor and/or Pledgor.

Reference is made to the Loan Agreement and the other terms defined herein. Borrower and Bank hereby agree to the Terms and Conditions attached hereto and any applicable Annex and/or Consent and Ratification attached hereto, each of which is incorporated herein by reference (collectively, the "**Deferral Agreement**").

BANK:

SILICON VALLEY BANK

By: /s/ Shawn Parry

Shawn Parry
Name

Managing Director
Title

BORROWER:

SPRUCE BIOSCIENCES, INC.

By: /s/ Richard King

Richard King
Name

Chief Executive Officer
Title

By:

Name

Title

1. Definitions. Capitalized terms used but not defined herein shall have the meanings ascribed to such terms in the Loan Agreement.

2. Interest Payments. Borrower shall at all times continue to make regularly scheduled monthly payments of accrued interest on each applicable payment date under the Loan Agreement.

3. Extension of Principal Payment Dates.

   a. The payment dates for all monthly payments of principal in respect of any term loans (but not any other facilities) which are due following the Deferral Agreement Effective Date shall each be extended by six (6) months.

   b. To the extent that the Loan Agreement permits Borrower to extend the period during which Borrower is only required to make payments of accrued interest (and no principal payments) (the "**Interest Only Period**") upon achieving one or more milestones or other thresholds, which milestones or thresholds have not yet been achieved as of the Deferral Agreement Effective Date, by execution of the Deferral Agreement, Borrower agrees that (a) the six (6) month extension of the Interest Only Period provided for by this Deferral Agreement shall supersede and replace any and all extensions of the Interest Only Period set forth in the Loan Agreement, and (b) any and all extensions of the Interest Only Period set forth in the Loan Agreement as of the Deferral Agreement Effective Date are hereby void, and shall be of no further force and effect. Nothing herein shall be construed as a modification or amendment of the existing terms and conditions in the Loan Agreement that provide for Bank to increase availability or to make additional advances or extensions of credit to Borrower, including if such increase or additional advances or extensions of credit require Borrower to achieve the same milestone or threshold that would have previously extended the Interest Only Period prior to Borrower entering into this Deferral Agreement.

   c. The amount of each monthly payment of principal following the extension shall be the same as the amount of the scheduled monthly payment of principal prior to the Deferral Agreement Effective Date.

   d. All deferred principal payments shall continue to be secured by all Collateral granted or pledged to Bank under the Loan Documents.

4. Extension of Maturity Date. The maturity date(s) for all term loans (but not any other facilities) under the Loan Agreement that occur after the Deferral Agreement Effective Date shall be extended by six (6) months, and the corresponding definitions of such maturity dates in the Loan Agreement shall be deemed to be amended accordingly.

5. Representations and Warranties. Borrower hereby represents and warrants that (a) Borrower has the power and authority to execute and deliver to Bank the Deferral Agreement, (b) the execution and delivery to Bank by Borrower of the Deferral Agreement and the performance of Borrower's obligations under the Loan Agreement, as amended by the Deferral Agreement, do not require any order, consent, approval, license, authorization or validation of, or filing, recording or registration with, or exemption by any governmental or public body or authority, or subdivision thereof, binding on Borrower, except as already has been obtained or made and (c) the Deferral Agreement has been duly executed and delivered by Borrower and is the binding obligation of Borrower, enforceable against Borrower in accordance with its terms, except as such enforceability may be limited by applicable bankruptcy, insolvency, reorganization or similar laws and equitable principals relating to or affecting creditors rights.

6. Ratification. Borrower hereby ratifies, confirms, and reaffirms all terms and conditions of all Loan Documents and all security or other collateral granted to Bank, and confirms that the indebtedness secured thereby includes, without limitation, the Obligations and all deferred principal payments.

7. Release. For good and valuable consideration, Borrower hereby forever relieves, releases, and discharges Bank and its present or former employees, officers, directors, agents, representatives, attorneys, and each of them, from any and all claims, debts, liabilities, demands, obligations, promises, acts, agreements, costs and expenses, actions and causes of action, of every type, kind, nature, description or character whatsoever, whether known or unknown, suspected or unsuspected, absolute or contingent, arising out of or in any manner whatsoever connected with or related to facts, circumstances, issues, controversies or claims existing or arising from the beginning of time through and including the date of execution hereof (collectively "**Released Claims**"). Without limiting the foregoing, the Released Claims shall include any and all liabilities or claims arising out of or in any manner whatsoever connected with or related to the Loan Documents, any instruments, agreements or documents executed in connection with any of the

foregoing or the origination, negotiation, administration, servicing or enforcement of any of the foregoing. Borrower expressly acknowledges and waives any and all rights under Section 1542 of the California Civil Code, which provides that:

> "A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party."

By entering into this release, Borrower recognizes that no facts or representations are ever absolutely certain and it may hereafter discover facts in addition to or different from those which it presently knows or believes to be true, but that it is the intention of Borrower hereby to fully, finally and forever settle and release all matters, disputes and differences, known or unknown, suspected or unsuspected; accordingly, if Borrower should subsequently discover that any fact that it relied upon in entering into this release was untrue, or that any understanding of the facts was incorrect, Borrower shall not be entitled to set aside this release by reason thereof, regardless of any claim of mistake of fact or law or any other circumstances whatsoever. Borrower acknowledges that it is not relying upon and has not relied upon any representation or statement made by Bank with respect to the facts underlying this release or with regard to any of such party's rights or asserted rights. This release may be pleaded as a full and complete defense and/or as a cross-complaint or counterclaim against any action, suit, or other proceeding that may be instituted, prosecuted or attempted in breach of this release. Borrower acknowledges that the release contained herein constitutes a material inducement to Bank to enter into the Deferral Agreement, and that Bank would not have done so but for Bank's expectation that such release is valid and enforceable in all events. Borrower hereby represents and warrants to Bank, and Bank is relying thereon, that (a), except as expressly stated herein, neither Bank nor any agent, employee or representative of Bank has made any statement or representation to Borrower regarding any fact relied upon by Borrower in entering into the Deferral Agreement, (b) Borrower has made such investigation of the facts pertaining hereto and all of the matters appertaining thereto, as it deems necessary; (c) the terms hereof are contractual and not a mere recital; (d) the Deferral Agreement has been carefully read by Borrower, the contents hereof are known and understood by Borrower, and the Deferral Agreement is signed freely, and without duress, by Borrower and (e) Borrower represents and warrants that it is the sole and lawful owner of all right, title and interest in and to every claim and every other matter which it releases herein, and that it has not heretofore assigned or transferred, or purported to assign or transfer, to any person, firm or entity any claims or other matters herein released. Borrower shall indemnify Bank, defend and hold it harmless from and against all claims based upon or arising in connection with prior assignments or purported assignments or transfers of any claims or matters released herein.

8. Full Force and Effect; Limitations of Deferral Agreement. Other than as expressly provided in the Deferral Agreement, the terms of the Loan Agreement remain in full force and effect. Bank's agreement to defer principal payments pursuant to the Deferral Agreement in no way shall constitute a waiver of or forbearance from any existing defaults under any of the Loan Documents, nor shall it obligate Bank to defer any future payments or waive or forbear from any future defaults under any of the Loan Documents. Nothing in the Deferral Agreement shall constitute a satisfaction of the Obligations. It is the intention of Bank and Borrower to retain as liable parties all makers of Loan Documents, unless the party is expressly released by Bank in writing. No maker will be released by virtue of the Deferral Agreement.

9. Miscellaneous.

   a. The Deferral Agreement may be executed and delivered in any number of counterparts and all of such counterparts taken together shall be deemed to constitute one and the same instrument.

   b. The words "execution," "signed," "signature" and words of like import in any Loan Document, including the Deferral Agreement, shall be deemed to include electronic signatures, including any Electronic Signature as defined in the Electronic Transactions Law (2003 Revision) of the Cayman Islands (the "Cayman Islands Electronic Signature Law"), or the keeping of records in electronic form, including any Electronic Record, as defined in Cayman Islands Electronic Signature Law, each of which shall be of the same legal effect, validity and enforceability as a manually executed signature or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any applicable law, including, without limitation, any state law based on the Uniform Electronic Transactions Act or the Cayman Islands Electronic Signature Law; provided, however that sections 8 and 19(3) of the Cayman Islands Electronic Signature Law shall not apply to this Deferral Agreement or the execution or delivery thereof.

c. The Deferral Agreement shall be effective as of the Deferral Agreement Effective Date.

d. The Deferral Agreement is a Loan Document and will be construed, interpreted, and applied in accordance with the laws of the jurisdiction whose laws govern the Loan Agreement (excluding its body of law controlling conflicts of law). Each party to the Deferral Agreement submits to the jurisdiction of the same state and federal courts to which it submitted under the Loan Agreement.

e. In the event of any action or proceeding to enforce the Deferral Agreement, Bank shall be entitled to recover from Borrower its attorneys' fees and expenses, disbursements and court costs.

[End of Terms and Conditions – Annex and Consent and Ratification Follow]

Additional Borrowers

Deferral Agreement Effective Date: April 2, 2020

Borrower: SPRUCE BIOSCIENCES, INC.

This Annex forms a part of the Deferral Agreement dated as of the date indicated above between Silicon Valley Bank and Borrower, as defined above. Capitalized terms used but not defined in this Annex shall have the meanings ascribed to them in the Deferral Agreement.

Each of the undersigned (collectively, the "**Additional Borrowers**") is a party to the Loan Agreement and hereby agrees to the terms and conditions set forth in the Deferral Agreement. Upon its execution hereof, each Additional Borrower shall be deemed to be a party to the Deferral Agreement.

By: _____	By: _____
Name	Name
Title	Title
By: _____	By: _____
Name	Name
Title	Title
By: _____	By: _____
Name	Name
Title	Title
By: _____	By: _____
Name	Name
Title	Title

This Consent and Ratification should be signed only to the extent that the Deferral Agreement to which it is attached indicates that it is applicable. Otherwise, this Consent and Ratification is not applicable and void and the following signature blocks should be left blank.

Each of the undersigned, in its capacity as a guarantor or pledgor of the Obligations under the Loan Agreement and the other Loan Documents, acknowledges receipt of the Deferral Agreement. Each of the undersigned further: (i) consents to the Deferral Agreement and the transactions and agreements contemplated thereby; (ii) reaffirms and acknowledges its continuing obligations under the guaranty, pledge agreement or other Loan Document(s) to which it is a party, and that such obligations remain in full force and effect; and (iii) acknowledges that Bank may, but shall be under no obligation to, obtain from the undersigned from time to time further acknowledgment of its continuing obligation under such agreement(s) or with respect to any extension of the time for payment of the Obligations or of any amendment of the terms thereof, waiver of any default, or forbearance in the exercise of any remedy afforded Bank by the terms of such Obligations or by law.

By: _____	By: _____
Name	Name
Title	Title
By: _____	By: _____
Name	Name
Title	Title
By: _____	By: _____
Name	Name
Title	Title
By: _____	By: _____
Name	Name
Title	Title

Exhibit 16.1

August 7, 2020

Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549

Ladies and Gentlemen:

We have read the discussion under Changes In And Disagreements With Accountants On Accounting And Financial Disclosure included in the registration statement on Form S-1 (date August 7, 2020), of Spruce Biosciences, Inc. and are in agreement with the statements contained in the 2nd, 3rd and 4th paragraphs therein. We have no basis to agree or disagree with other statements of the registrant contained therein.

/s/ Ernst & Young LLP

San Diego, California