

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

**FORM 8-K**

**CURRENT REPORT**

**Pursuant to Section 13 OR 15(d) of The Securities Exchange Act of 1934**

**Date of Report (Date of earliest event reported): February 8, 2023**

**Spruce Biosciences, Inc.**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or other jurisdiction  
of incorporation)

**001-39594**  
(Commission File Number)

**81-2154263**  
(IRS Employer  
Identification No.)

**611 Gateway Boulevard, Suite 740**  
**South San Francisco, California**  
(Address of principal executive offices)

**94080**  
(Zip Code)

**Registrant's telephone number, including area code: (415) 655-4168**

**Not Applicable**

(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value \$0.0001 per share	SPRB	Nasdaq Global Select Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§ 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§ 240.12b-2 of this chapter).

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 13(a) of the Exchange Act.

## **Item 1.01 Entry into a Material Definitive Agreement.**

### ***Private Placement of Common Stock and Warrants***

On February 8, 2023, Spruce Biosciences, Inc. (the “Company”) entered into a Securities Purchase Agreement (the “Purchase Agreement”) with certain institutional investors (the “Purchasers”), pursuant to which the Company agreed to sell and issue (i) 16,116,000 shares of the Company’s common stock (“Common Stock”), (ii) pre-funded warrants to purchase 800,000 shares of Common Stock (the “Pre-Funded Warrants”) to a Purchaser and (iii) 12,687,000 warrants to purchase Common Stock (the “Standard Warrants” and together with the Pre-Funded Warrants, the “Warrants”) in a private placement transaction (the “Private Placement”). Each Purchaser’s Standard Warrant is exercisable for a number of shares of Common Stock equal to seventy-five percent of the aggregate number of shares of Common Stock and shares of Common Stock underlying Pre-Funded Warrants, if applicable, purchased by such Purchaser. The purchase price per share of Common Stock and Standard Warrant is \$3.17 per share (the “Purchase Price”) and the purchase price for the Pre-Funded Warrants is the Purchase Price minus \$0.01 per Pre-Funded Warrant. The closing of the Private Placement is expected to occur on or before February 17, 2023 (the “Closing”), subject to customary closing conditions. The total gross proceeds to the Company at the Closing are expected to be approximately \$53.6 million, which does not include any proceeds that may be received upon exercise of the Standard Warrants.

The Pre-Funded Warrants have a per share exercise price of \$0.01 and the Standard Warrants have an exercise price of \$3.96 per share, in each case subject to proportional adjustments in the event of stock splits or combinations or similar events. The Warrants will be exercisable for a period of five years following the date of issuance. Abingworth, HealthCap, Novo Holdings A/S, RiverVest Venture Partners, and Rock Springs Capital, each a holder of more than 5% of our total Common Stock outstanding on the date of the Purchase Agreement, are Purchasers in the Private Placement.

SVB Securities LLC is acting as lead placement agent (the “Placement Agent”) for the Private Placement. The Placement Agent is entitled to receive a portion of a combined fee equal to approximately 5% of the aggregate gross proceeds from the securities sold at the Closing, plus the reimbursement of certain expenses.

Under the terms of the Purchase Agreement, the Company has agreed to prepare and file, within 30 days after the Closing (the “Filing Deadline”), one or more registration statements with the Securities and Exchange Commission (the “SEC”) to register for resale the Common Stock issued under the Purchase Agreement and the shares of Common Stock issuable upon conversion of the Warrants issued pursuant to the Purchase Agreement (the “Registrable Securities”), and to cause the applicable registration statements to become effective within a specified period after the Filing Deadline. Certain cash penalties will apply to the Company in the event of registration failures, as described in the Purchase Agreement.

The Purchase Agreement contains customary representations, warranties and covenants that were made solely for the benefit of the parties to the Purchase Agreement. Such representations, warranties and covenants (i) are intended as a way of allocating risk between the parties to the Purchase Agreement and not as statements of fact, and (ii) may apply standards of materiality in a way that is different from what may be viewed as material by stockholders of, or other investors in, the Company. Accordingly, the Purchase Agreement is included with this filing only to provide investors with information regarding the terms of transaction and not to provide investors with any other factual information regarding the Company. Investors should not rely on the representations, warranties and covenants or any descriptions thereof as characterizations of the actual state of facts or condition of the Company or any of its subsidiaries or affiliates. Moreover, information concerning the subject matter of the representations and warranties may change after the date of the Purchase Agreement, which subsequent information may or may not be fully reflected in public disclosures.

The foregoing is only a summary of the terms of the Purchase Agreement and the Warrants issued under the Purchase Agreement, does not purport to be complete and is qualified in its entirety by reference to the full text of (i) the Purchase Agreement, a copy of which is attached to this report as Exhibit 10.1, (ii) the form of Pre-Funded Warrant issued under the Purchase Agreement, a copy of which is attached to this report as Exhibit 4.1 and (iii) the form of Standard Warrant issued under the Purchase Agreement, a copy of which is attached to this report as Exhibit 4.2.

## **Item 3.02 Unregistered Sales of Equity Securities.**

The disclosure regarding the securities to be sold and issued under the Purchase Agreement as set forth under Item 1.01 of this report is incorporated by reference under this Item 3.02.

The securities described above under Item 1.01 have not been registered under the Securities Act of 1933, as amended (the “Securities Act”). The Company relied on the exemption from the registration requirements of the Securities Act by virtue of Section 4(a)(2) thereof and Rule 506 of Regulation D thereunder. Each of the Purchasers has represented that it is an “accredited investor” as defined in Regulation D of the Securities Act and that it is acquiring the securities for investment only and not with a view towards, or for resale in connection with, the public sale or distribution thereof, and appropriate legends will be affixed to the securities.

---

**Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits.

<b>Exhibit Number</b>	<b>Description</b>
4.1	<a href="#">Form of Pre-Funded Warrant to Purchase Common Stock.</a>
4.2	<a href="#">Form of Common Stock Purchase Warrant.</a>
10.1	<a href="#">Securities Purchase Agreement, dated February 8, 2023, by and among Spruce Biosciences, Inc. and the Purchasers.</a>
104	Cover Page Interactive Data File (embedded within the Inline XBRL document).

---

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

**SPRUCE BIOSCIENCES, INC.**

Date: February 9, 2023

By: \_\_\_\_\_ /s/ Samir Gharib  
Samir Gharib  
President and Chief Financial Officer

---

NEITHER THIS SECURITY NOR THE SECURITIES FOR WHICH THIS SECURITY IS EXERCISABLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS. THIS SECURITY AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN SECURED BY SUCH SECURITIES.

## PRE-FUNDED WARRANT TO PURCHASE COMMON STOCK

### SPRUCE BIOSCIENCES, INC.

Warrant Shares: [\_\_\_\_\_]

Issue Date: [\_\_\_\_], 2023

THIS PRE-FUNDED WARRANT TO PURCHASE COMMON STOCK (the "Warrant") certifies that, for value received, [\_\_\_\_\_] or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date hereof (the "Initial Exercise Date") and until 5:00 p.m. (New York City time) on [\_\_\_\_], 2028 (the "Termination Date") but not thereafter, to subscribe for and purchase from Spruce Biosciences, Inc., a Delaware corporation (the "Company"), up to [\_\_\_\_\_] shares (as subject to adjustment hereunder, the "Warrant Shares") of Common Stock. The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. In addition to the terms defined elsewhere in this Warrant, the following terms have the meanings indicated in this Section 1:

"Affiliate" means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person as such terms are used in and construed under Rule 405 under the Securities Act.

"Bid Price" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date)

on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“Business Day” means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the common stock of the Company, par value \$0.0001 per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

“Common Stock Equivalents” means any securities of the Company or any subsidiaries of the Company which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Purchase Agreement” means the Securities Purchase Agreement, dated February 8, 2023, by and among the Company and the original Holder of this Warrant and the other parties named therein.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Trading Day” means a day on which the Common Stock is traded on a Trading Market.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market or the New York Stock Exchange (or any successors to any of the foregoing).

“Transfer Agent” means Computershare Trust Company, N.A., the current transfer agent of the Company, with a mailing address of 150 Royall St., Suite 101, Canton, MA 02021, and any successor transfer agent of the Company.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“Warrants” means this Warrant and other warrants issued by the Company pursuant to the Purchase Agreement.

## Section 2. Exercise.

a) Exercise of Warrants. Subject to Section 2(e), exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed e-mail attachment of the Notice of Exercise in the form annexed hereto (the “Notice of Exercise”). Within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price to the Company for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer or cashier’s check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is then permitted and is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days of the date the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares

purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Trading Day of receipt of such notice. The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.

b) Exercise Price. The exercise price per share of the Common Stock under this Warrant shall be \$0.01, subject to adjustment hereunder (the "Exercise Price").

c) Cashless Exercise. If, at any time following the six-month anniversary of the Issue Date, at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of, the Warrant Shares to the Holder or the resale of the Warrant Shares by the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a "cashless exercise" in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of "regular trading hours" (as defined in Rule 600(b)(64) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder's execution of the applicable Notice of Exercise if such Notice of Exercise is executed during "regular trading hours" on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of "regular trading hours" on a Trading Day) pursuant to Section 2(a) hereof or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of "regular trading hours" on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the holding period of the Warrant Shares being issued may be tacked on to the holding period of this Warrant. The Company agrees not to take any position contrary to this Section 2(c).



d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("DWAC") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by the Holder or (B) the Warrant Shares are eligible for resale by the Holder without volume or manner of sale limitations pursuant to Rule 144 (assuming cashless exercise of the Warrants, if then permitted), and otherwise by book-entry form or, if requested by the Holder, a physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earlier of (i) the earlier of (A) two (2) Trading Days after the delivery to the Company of the Notice of Exercise and (B) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company and (ii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise, if then permitted) is received within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period following delivery of the Notice of Exercise. Notwithstanding anything herein to the contrary, upon delivery of the Notice of Exercise, the Holder shall be deemed for purposes of Regulation SHO under the Exchange Act to have become the holder of the Warrant Shares irrespective of the date of delivery of the Warrant Shares. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise upon written notice to the Company.

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date (other than a failure caused by incorrect or incomplete information provided by Holder to the Company), and if after such date the Holder is required to or otherwise purchases (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder was entitled to receive upon the exercise relating to such Warrant Share Delivery Date (a "Buy-In"), then the Company shall (A) pay in cash to the Holder (in addition to any other remedies available to or elected by such Holder) the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the product of (1) the aggregate number of shares of Common Stock that the Holder was entitled to receive in connection with the exercise at issue multiplied by (2) the actual sale price at which the sell order giving rise to such purchase obligation was executed (including any brokerage commissions), and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued if the Company had timely complied with its exercise and delivery obligations requirements under Section 2(d)(i). For example, if the Holder purchases shares of Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with respect to which the actual sale price (including any brokerage commissions) giving rise to such purchase obligation was a total of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice, within three (3) Trading Days after the occurrence of a Buy-In, indicating the amounts payable to the Holder in respect of the Buy-In together with applicable confirmations and other evidence reasonably requested by the Company. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof; provided, however, that the Holder shall not be entitled to both (i) require the Company to

reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not timely honored and (ii) receive the number of shares of Common Stock that would have been issued if the Company had timely complied with its delivery requirements under Section 2(d)(i).

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below), unless, in the case of a Holder with a Beneficial Ownership Limitation of 19.99%, Shareholder Approval (as defined below) is obtained prior to such issuance. For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable

upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within one (1) Trading Day confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall initially be 4.99% (or upon the election of a Holder prior to the issuance of any Warrants, 9.99%) of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The Holder, upon notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% (or upon the election of a Holder prior to the issuance of any Warrants, 19.99%) of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61<sup>st</sup> day after such notice is delivered to the Company. The provisions

of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant. “Shareholder Approval” means, such approval as may be required by the applicable rules and regulations of the Nasdaq Stock Market (or any successor entity) from the stockholders of the Company with respect to the transactions contemplated by this paragraph. The Company shall use its commercially reasonable efforts to obtain such Shareholder Approval upon written request from the Holder.

Section 3. Certain Adjustments.

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case on the effective date, the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the “Purchase Rights”), then in each case on the effective date, the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, to the extent that the Holder’s right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the

Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

c) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock other than as set forth in Section 3(a), by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a “Distribution”), at any time after the issuance of this Warrant, then, in each such case on the effective date, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock or 50% or more of the voting power of the common equity of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding shares of Common Stock (each a “Fundamental Transaction”), then, upon any subsequent

exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and/or any additional or other consideration (the "Alternate Consideration") as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of one share of Common Stock (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Company under this Warrant in accordance with the provisions of this Section 3(d) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and reasonably approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder and to the extent applicable in light of the structure of the Fundamental Transaction, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) (only to the extent such capital stock is the form of consideration paid in the Fundamental Transaction) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall be added to the term "Company" under this Warrant (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant referring to the "Company" shall refer instead to each of the Company and the Successor Entity or Successor Entities, jointly and severally), and the Successor Entity or Successor Entities, jointly and severally with the Company, may exercise every right and power of the Company prior thereto and the Successor Entity or Successor Entities shall assume all of the obligations of the Company

prior thereto under this Warrant with the same effect as if the Company and such Successor Entity or Successor Entities, jointly and severally, had been named as the Company herein.

e) Black Scholes Value. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any Successor Entity shall, at the Holder's option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, the Holder shall only be entitled to receive from the Company or any Successor Entity, as of the date of consummation of such Fundamental Transaction, the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided, further, that if holders of Common Stock of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Stock will be deemed to have received common stock of the Successor Entity (which entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. "Black Scholes Value" means the value of this Warrant based on the Black and Scholes Option Pricing Model obtained from the "OV" function on Bloomberg L.P. determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, (B) an expected volatility equal to the lesser of 100% and the 100 day volatility obtained from the HVT function on Bloomberg L.P. (determined utilizing a 365-day annualization factor) as of the Trading Day immediately following the public announcement of the applicable Fundamental Transaction, or, if the Fundamental Transaction is not publicly announced, the date the Fundamental Transaction is consummated, (C) the underlying price per share used in such calculation shall be the greater of (i) the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (ii) the highest VWAP during the period beginning on the Trading Day immediately preceding the announcement of the applicable Fundamental Transaction (or the consummation of the applicable Fundamental Transaction, if earlier) and ending on the Trading Day of the Holder's request pursuant to this Section 3(e), (D) a remaining option time equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds (or such other consideration) within five Trading Days of the Holder's election (or, if later, on the effective date of the Fundamental Transaction).



f) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

g) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company directly or indirectly is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by email to the Holder at its last email address as it shall appear upon the Warrant Register (as defined below) of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, liquidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, liquidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public

information regarding the Company or any subsidiaries of the Company, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

Section 4. Transfer of Warrant.

a). Transferability. This Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b). New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the Issue Date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c). Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

d). Transfer Restrictions. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant, the transfer of this Warrant shall not be either (i) registered pursuant to an effective registration statement under the Securities Act and

under applicable state securities or blue sky laws or (ii) eligible for resale without volume or manner-of-sale restrictions or current public information requirements pursuant to Rule 144, the Company may require, as a condition of allowing such transfer, that the Holder or transferee of this Warrant, as the case may be, provide to the Company an opinion of counsel selected by the Holder and reasonably acceptable to the Company, the form and substance of which opinion shall be reasonably satisfactory to the Company, to the effect that such transfer does not require registration of such transferred Warrant under the Securities Act. Notwithstanding anything herein to the contrary, the foregoing opinion requirement shall not be required in connection with a transfer of this Warrant to an Affiliate of the transferor.

e). Representation by the Holder. The Holder, by the acceptance hereof, represents and warrants that it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act.

Section 5. Miscellaneous.

a). No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting any rights of a Holder to receive Warrant Shares on a “cashless exercise” pursuant to Section 2(c) or to receive cash payments pursuant to Section 2(d)(i) and Section 2(d)(iv), in no event will the Company be required to net cash settle a Warrant exercise.

b). Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or any stock certificate, if mutilated, the Company will make and deliver a new Warrant or issue stock (in certificated or book entry form) of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c). Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day or Trading Day, then, such action may be taken or such right may be exercised on the next succeeding Business Day or Trading Day, as applicable.

d). Authorized Shares.

The Company covenants that during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a

sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e). Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof (whether of the State of New York or any other jurisdiction) which would result in the application of the laws of any other jurisdiction. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Warrant (whether brought against a party hereto

or their respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is improper or is an inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Warrant and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an action, suit or proceeding to enforce any provisions of this Warrant, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for their reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding. Notwithstanding the foregoing, nothing in this paragraph shall limit or restrict the federal district court in which a Holder may bring a claim under federal securities laws.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, if then permitted, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. Without limiting any other provision of this Warrant or the Purchase Agreement pursuant to which this Warrant was issued, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any and all notices or other communications or deliveries to be provided by the Holders hereunder including, without limitation, any Notice of Exercise, shall be in writing and delivered personally, by e-mail, or sent by a nationally recognized overnight courier service, addressed to the Company, at Spruce Biosciences, Inc., 611 Gateway Boulevard, Suite 740, South San Francisco, California 94080, Attention: President and Chief Financial Officer, email address: sgharib@sprucebiosciences.com, or such other email address or address as the Company may specify for such purposes by notice to the Holders. Any and all notices or other communications or deliveries to be provided by the Company hereunder shall be in writing and delivered personally, by

e-mail, or sent by a nationally recognized overnight courier service addressed to each Holder at the e-mail address or address of such Holder appearing on the books of the Company. Any notice or other communication or deliveries hereunder shall be deemed given and effective on the earliest of (i) the time of transmission, if such notice or communication is delivered via e-mail at the e-mail address set forth in this Section prior to 5:30 p.m. (New York City time) on any date, (ii) the next Trading Day after the date of transmission, if such notice or communication is delivered via e-mail at the e-mail address set forth in this Section on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (iii) the second Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service, or (iv) upon actual receipt by the party to whom such notice is required to be given. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company and the Holder.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

\*\*\*\*\*

*(Signature Page Follows)*

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

**SPRUCE BIOSCIENCES, INC.**

By: \_\_\_\_\_  
Name: Samir Gharib  
Title: President and Chief Financial Officer



**NOTICE OF EXERCISE**

**TO: SPRUCE BIOSCIENCES, INC.**

(1) The undersigned hereby elects to purchase \_\_\_\_\_ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted, the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

\_\_\_\_\_

The Warrant Shares shall be delivered to the following DWAC Account Number:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

Signature of Authorized Signatory of Investing Entity: \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_

**EXHIBIT B**

ASSIGNMENT FORM

*(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)*

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name:

(Please Print)

Address:

(Please Print)

Phone Number:

\_\_\_\_\_

Email Address:

\_\_\_\_\_

Dated: \_\_\_\_\_, \_\_\_\_\_

Holder's Signature:

Holder's Address:

---

NEITHER THIS SECURITY NOR THE SECURITIES FOR WHICH THIS SECURITY IS EXERCISABLE HAVE BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS. THIS SECURITY AND THE SECURITIES ISSUABLE UPON EXERCISE OF THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT OR OTHER LOAN SECURED BY SUCH SECURITIES.

## COMMON STOCK PURCHASE WARRANT

### SPRUCE BIOSCIENCES, INC.

Warrant Shares: [\_\_\_\_\_]

Issue Date: [\_\_\_\_], 2023

THIS COMMON STOCK PURCHASE WARRANT (the "Warrant") certifies that, for value received, [\_\_\_\_\_] or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date hereof (the "Initial Exercise Date") and until 5:00 p.m. (New York City time) on [\_\_\_\_], 2028 (the "Termination Date") but not thereafter, to subscribe for and purchase from Spruce Biosciences, Inc., a Delaware corporation (the "Company"), up to [\_\_\_\_] shares (as subject to adjustment hereunder, the "Warrant Shares") of Common Stock. The purchase price of one share of Common Stock under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. In addition to the terms defined elsewhere in this Warrant, the following terms have the meanings indicated in this Section 1:

"Affiliate" means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person as such terms are used in and construed under Rule 405 under the Securities Act.

"Bid Price" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the bid price of the Common Stock for the time in question (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date)

on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“Business Day” means any day except any Saturday, any Sunday, any day which is a federal legal holiday in the United States or any day on which banking institutions in the State of New York are authorized or required by law or other governmental action to close.

“Commission” means the United States Securities and Exchange Commission.

“Common Stock” means the common stock of the Company, par value \$0.0001 per share, and any other class of securities into which such securities may hereafter be reclassified or changed.

“Common Stock Equivalents” means any securities of the Company or any subsidiaries of the Company which would entitle the holder thereof to acquire at any time Common Stock, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock.

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Purchase Agreement” means the Securities Purchase Agreement, dated February 8, 2023, by and among the Company and the original Holder of this Warrant and the other parties named therein.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Trading Day” means a day on which the Common Stock is traded on a Trading Market.

“Trading Market” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, the Nasdaq Capital Market, the Nasdaq Global Market, the Nasdaq Global Select Market or the New York Stock Exchange (or any successors to any of the foregoing).

“Transfer Agent” means Computershare Trust Company, N.A., the current transfer agent of the Company, with a mailing address of 150 Royall St., Suite 101, Canton, MA 02021, and any successor transfer agent of the Company.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Stock for such date (or the nearest preceding date) on the Trading Market on which the Common Stock is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if OTCQB or OTCQX is not a Trading Market, the volume weighted average price of the Common Stock for such date (or the nearest preceding date) on OTCQB or OTCQX as applicable, (c) if the Common Stock is not then listed or quoted for trading on OTCQB or OTCQX and if prices for the Common Stock are then reported on the Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per share of the Common Stock so reported, or (d) in all other cases, the fair market value of a share of Common Stock as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Warrants then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“Warrants” means this Warrant and other warrants issued by the Company pursuant to the Purchase Agreement.

## Section 2. Exercise.

a) Exercise of Warrants. Subject to Section 2(e), exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed e-mail attachment of the Notice of Exercise in the form annexed hereto (the “Notice of Exercise”). Within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price to the Company for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer or cashier’s check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is then permitted and is specified in the applicable Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days of the date the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares

purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Trading Day of receipt of such notice. The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.

b) Exercise Price. The exercise price per share of the Common Stock under this Warrant shall be \$3.96, subject to adjustment hereunder (the "Exercise Price").

c) Cashless Exercise. If, at any time following the six-month anniversary of the Issue Date, at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of, the Warrant Shares to the Holder or the resale of the Warrant Shares by the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a "cashless exercise" in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of "regular trading hours" (as defined in Rule 600(b)(64) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) at the option of the Holder, either (y) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (z) the Bid Price of the Common Stock on the principal Trading Market as reported by Bloomberg L.P. as of the time of the Holder's execution of the applicable Notice of Exercise if such Notice of Exercise is executed during "regular trading hours" on a Trading Day and is delivered within two (2) hours thereafter (including until two (2) hours after the close of "regular trading hours" on a Trading Day) pursuant to Section 2(a) hereof or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of "regular trading hours" on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the holding period of the Warrant Shares being issued may be tacked on to the holding period of this Warrant. The Company agrees not to take any position contrary to this Section 2(c).

d) Mechanics of Exercise.

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("DWAC") if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares to or resale of the Warrant Shares by the Holder or (B) the Warrant Shares are eligible for resale by the Holder without volume or manner of sale limitations pursuant to Rule 144 (assuming cashless exercise of the Warrants, if then permitted), and otherwise by book-entry form or, if requested by the Holder, a physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earlier of (i) the earlier of (A) two (2) Trading Days after the delivery to the Company of the Notice of Exercise and (B) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company and (ii) the number of Trading Days comprising the Standard Settlement Period after the delivery to the Company of the Notice of Exercise (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise, if then permitted) is received within the earlier of (i) two (2) Trading Days and (ii) the number of Trading Days comprising the Standard Settlement Period following delivery of the Notice of Exercise. Notwithstanding anything herein to the contrary, upon delivery of the Notice of Exercise, the Holder shall be deemed for purposes of Regulation SHO under the Exchange Act to have become the holder of the Warrant Shares irrespective of the date of delivery of the Warrant Shares. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Stock as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise upon written notice to the Company.

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date (other than a failure caused by incorrect or incomplete information provided by Holder to the Company), and if after such date the Holder is required to or otherwise purchases (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, shares of Common Stock to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder was entitled to receive upon the exercise relating to such Warrant Share Delivery Date (a "Buy-In"), then the Company shall (A) pay in cash to the Holder (in addition to any other remedies available to or elected by such Holder) the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased exceeds (y) the product of (1) the aggregate number of shares of Common Stock that the Holder was entitled to receive in connection with the exercise at issue multiplied by (2) the actual sale price at which the sell order giving rise to such purchase obligation was executed (including any brokerage commissions), and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of shares of Common Stock that would have been issued if the Company had timely complied with its exercise and delivery obligations requirements under Section 2(d)(i). For example, if the Holder purchases shares of Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock with respect to which the actual sale price (including any brokerage commissions) giving rise to such purchase obligation was a total of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice, within three (3) Trading Days after the occurrence of a Buy-In, indicating the amounts payable to the Holder in respect of the Buy-In together with applicable confirmations and other evidence reasonably requested by the Company. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof; provided, however, that the Holder shall not be entitled to both (i) require the Company to



reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not timely honored and (ii) receive the number of shares of Common Stock that would have been issued if the Company had timely complied with its delivery requirements under Section 2(d)(i).

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share.

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form attached hereto duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below), unless, in the case of a Holder with a Beneficial Ownership Limitation of 19.99%, Shareholder Approval (as defined below) is obtained prior to such issuance. For purposes of the foregoing sentence, the number of shares of Common Stock beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable

upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Stock Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 2(e), in determining the number of outstanding shares of Common Stock, a Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of a Holder, the Company shall within one (1) Trading Day confirm orally and in writing to the Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding shares of Common Stock was reported. The "Beneficial Ownership Limitation" shall initially be 4.99% (or upon the election of a Holder prior to the issuance of any Warrants, 9.99%) of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant. The Holder, upon notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% (or upon the election of a Holder prior to the issuance of any Warrants, 19.99%) of the number of shares of the Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61<sup>st</sup> day after such notice is delivered to the Company. The provisions

of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant. “Shareholder Approval” means, such approval as may be required by the applicable rules and regulations of the Nasdaq Stock Market (or any successor entity) from the stockholders of the Company with respect to the transactions contemplated by this paragraph. The Company shall use its commercially reasonable efforts to obtain such Shareholder Approval upon written request from the Holder.

Section 3. Certain Adjustments.

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Stock or any other equity or equity equivalent securities payable in shares of Common Stock (which, for avoidance of doubt, shall not include any shares of Common Stock issued by the Company upon exercise of this Warrant), (ii) subdivides outstanding shares of Common Stock into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding shares of Common Stock into a smaller number of shares, or (iv) issues by reclassification of shares of the Common Stock any shares of capital stock of the Company, then in each case on the effective date, the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time the Company grants, issues or sells any Common Stock Equivalents or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of shares of Common Stock (the “Purchase Rights”), then in each case on the effective date, the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, to the extent that the Holder’s right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the

Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such shares of Common Stock as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

c) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to holders of shares of Common Stock other than as set forth in Section 3(a), by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a “Distribution”), at any time after the issuance of this Warrant, then, in each such case on the effective date, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution (provided, however, to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any shares of Common Stock as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding Common Stock or 50% or more of the voting power of the common equity of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the outstanding shares of Common Stock or 50% or more of the voting power of the common equity of the

Company (each a “Fundamental Transaction”), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of shares of Common Stock of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and/or any additional or other consideration (the “Alternate Consideration”) as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of one share of Common Stock (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the “Successor Entity”) to assume in writing all of the obligations of the Company under this Warrant in accordance with the provisions of this Section 3(d) pursuant to written agreements in form and substance reasonably satisfactory to the Holder and reasonably approved by the Holder (without unreasonable delay) prior to such Fundamental Transaction and shall, at the option of the Holder and to the extent applicable in light of the structure of the Fundamental Transaction, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) (only to the extent such capital stock is the form of consideration paid in the Fundamental Transaction) equivalent to the shares of Common Stock acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the shares of Common Stock pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall be added to the term “Company” under this Warrant (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant referring to the “Company” shall refer instead to each of the Company and the Successor Entity or Successor Entities, jointly and severally), and the Successor Entity or Successor Entities, jointly and severally with the Company, may exercise every right and power of the Company prior thereto and the Successor Entity or Successor Entities shall assume all of the obligations of the Company

prior thereto under this Warrant with the same effect as if the Company and such Successor Entity or Successor Entities, jointly and severally, had been named as the Company herein.

e) Black Scholes Value. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction, the Company or any Successor Entity shall, at the Holder's option, exercisable at any time concurrently with, or within 30 days after, the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder an amount of cash equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction; provided, however, if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, the Holder shall only be entitled to receive from the Company or any Successor Entity, as of the date of consummation of such Fundamental Transaction, the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Stock in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Stock are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided, further, that if holders of Common Stock of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Stock will be deemed to have received common stock of the Successor Entity (which entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. "Black Scholes Value" means the value of this Warrant based on the Black and Scholes Option Pricing Model obtained from the "OV" function on Bloomberg L.P. determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, (B) an expected volatility equal to the lesser of 100% and the 100 day volatility obtained from the HVT function on Bloomberg L.P. (determined utilizing a 365-day annualization factor) as of the Trading Day immediately following the public announcement of the applicable Fundamental Transaction, or, if the Fundamental Transaction is not publicly announced, the date the Fundamental Transaction is consummated, (C) the underlying price per share used in such calculation shall be the greater of (i) the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction and (ii) the highest VWAP during the period beginning on the Trading Day immediately preceding the announcement of the applicable Fundamental Transaction (or the consummation of the applicable Fundamental Transaction, if earlier) and ending on the Trading Day of the Holder's request pursuant to this Section 3(e), (D) a remaining option time equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds (or such other consideration) within five Trading Days of the Holder's election (or, if later, on the effective date of the Fundamental Transaction).

f) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of shares of Common Stock deemed to be issued and outstanding as of a given date shall be the sum of the number of shares of Common Stock (excluding treasury shares, if any) issued and outstanding.

g) Notice to Holder.

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Stock, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Stock, (C) the Company shall authorize the granting to all holders of the Common Stock rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Stock, any consolidation or merger to which the Company directly or indirectly is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Stock is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by email to the Holder at its last email address as it shall appear upon the Warrant Register (as defined below) of the Company, at least 20 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Stock of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, liquidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares of the Common Stock for securities, cash or other property deliverable upon such reclassification, consolidation, liquidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public

information regarding the Company or any subsidiaries of the Company, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

**Section 4. Transfer of Warrant.**

a) Transferability. This Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the Issue Date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

d) Transfer Restrictions. If, at the time of the surrender of this Warrant in connection with any transfer of this Warrant, the transfer of this Warrant shall not be either (i) registered pursuant to an effective registration statement under the Securities Act and



under applicable state securities or blue sky laws or (ii) eligible for resale without volume or manner-of-sale restrictions or current public information requirements pursuant to Rule 144, the Company may require, as a condition of allowing such transfer, that the Holder or transferee of this Warrant, as the case may be, provide to the Company an opinion of counsel selected by the Holder and reasonably acceptable to the Company, the form and substance of which opinion shall be reasonably satisfactory to the Company, to the effect that such transfer does not require registration of such transferred Warrant under the Securities Act. Notwithstanding anything herein to the contrary, the foregoing opinion requirement shall not be required in connection with a transfer of this Warrant to an Affiliate of the transferor.

e). Representation by the Holder. The Holder, by the acceptance hereof, represents and warrants that it is acquiring this Warrant and, upon any exercise hereof, will acquire the Warrant Shares issuable upon such exercise, for its own account and not with a view to or for distributing or reselling such Warrant Shares or any part thereof in violation of the Securities Act or any applicable state securities law, except pursuant to sales registered or exempted under the Securities Act.

Section 5. Miscellaneous.

a). No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting any rights of a Holder to receive Warrant Shares on a “cashless exercise” pursuant to Section 2(c) or to receive cash payments pursuant to Section 2(d)(i) and Section 2(d)(iv), in no event will the Company be required to net cash settle a Warrant exercise.

b). Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or any stock certificate, if mutilated, the Company will make and deliver a new Warrant or issue stock (in certificated or book entry form) of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c). Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day or Trading Day, then, such action may be taken or such right may be exercised on the next succeeding Business Day or Trading Day, as applicable.

d). Authorized Shares.

The Company covenants that during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Stock a

sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Stock may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment. Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e). Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof (whether of the State of New York or any other jurisdiction) which would result in the application of the laws of any other jurisdiction. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Warrant (whether brought against a party hereto

or their respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the City of New York, Borough of Manhattan for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is improper or is an inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Warrant and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an action, suit or proceeding to enforce any provisions of this Warrant, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for their reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding. Notwithstanding the foregoing, nothing in this paragraph shall limit or restrict the federal district court in which a Holder may bring a claim under federal securities laws.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, if then permitted, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies. Without limiting any other provision of this Warrant or the Purchase Agreement pursuant to which this Warrant was issued, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any and all notices or other communications or deliveries to be provided by the Holders hereunder including, without limitation, any Notice of Exercise, shall be in writing and delivered personally, by e-mail, or sent by a nationally recognized overnight courier service, addressed to the Company, at Spruce Biosciences, Inc., 611 Gateway Boulevard, Suite 740, South San Francisco, California 94080, Attention: President and Chief Financial Officer, email address: sgharib@sprucebiosciences.com, or such other email address or address as the Company may specify for such purposes by notice to the Holders. Any and all notices or other communications or deliveries to be provided by the Company hereunder shall be in writing and delivered personally, by

e-mail, or sent by a nationally recognized overnight courier service addressed to each Holder at the e-mail address or address of such Holder appearing on the books of the Company. Any notice or other communication or deliveries hereunder shall be deemed given and effective on the earliest of (i) the time of transmission, if such notice or communication is delivered via e-mail at the e-mail address set forth in this Section prior to 5:30 p.m. (New York City time) on any date, (ii) the next Trading Day after the date of transmission, if such notice or communication is delivered via e-mail at the e-mail address set forth in this Section on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (iii) the second Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service, or (iv) upon actual receipt by the party to whom such notice is required to be given. To the extent that any notice provided hereunder constitutes, or contains, material, non-public information regarding the Company or any subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Stock or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company and the Holder.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

\*\*\*\*\*

*(Signature Page Follows)*

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

**SPRUCE BIOSCIENCES, INC.**

By: \_\_\_\_\_  
Name: Samir Gharib  
Title: President and Chief Financial Officer

**NOTICE OF EXERCISE**

**TO: SPRUCE BIOSCIENCES, INC.**

(1) The undersigned hereby elects to purchase \_\_\_\_\_ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted, the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

\_\_\_\_\_

The Warrant Shares shall be delivered to the following DWAC Account Number:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

Signature of Authorized Signatory of Investing Entity: \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_

**EXHIBIT B**

ASSIGNMENT FORM

*(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)*

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name:

(Please Print)

Address:

(Please Print)

Phone Number:

\_\_\_\_\_

Email Address:

\_\_\_\_\_

Dated: \_\_\_\_\_, \_\_\_\_\_

Holder's Signature:

Holder's Address:

---



## SECURITIES PURCHASE AGREEMENT

This SECURITIES PURCHASE AGREEMENT (this “**Agreement**”), dated as of February 8, 2023, is made by and among **SPRUCE BIOSCIENCES, INC.**, a Delaware corporation (the “**Company**”), and the Purchasers listed on **Exhibit A** hereto, together with their permitted transferees (each, a “**Purchaser**” and collectively, the “**Purchasers**”).

## RECITALS

**A.** The Company and the Purchasers are executing and delivering this Agreement in reliance upon the exemption from securities registration afforded by Section 4(a)(2) of the Securities Act and/or Rule 506(b) of Regulation D (“**Regulation D**”) as promulgated by the SEC under the Securities Act.

**B.** The Purchasers, severally, and not jointly, desire to purchase from the Company, and the Company desires to sell to the Purchasers, upon the terms and conditions stated in this Agreement, (A) shares (the “**Shares**”) of the Company’s common stock, par value \$0.0001 per share (“**Common Stock**”), (B) to certain Purchasers, pre-funded warrants to purchase Common Stock (“**Pre-Funded Warrants**”) and (C) warrants to purchase Common Stock (“**Standard Warrants**”) having an aggregate purchase price of up to \$53,623,720.00, as more fully described in this Agreement.

**C.** The capitalized terms used herein and not otherwise defined have the meanings given them in Article 7.

## AGREEMENT

In consideration of the premises and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and the Purchasers (severally and not jointly) hereby agree as follows:

## ARTICLE 1

## PURCHASE AND SALE

## 1.1 Closing.

**(a) Purchase and Sale.** At the closing of the transaction contemplated by this Agreement (the “**Closing**”), the Company will sell and issue to each Purchaser, and each Purchaser will, severally and not jointly, purchase from the Company, (A) the number of Shares equal to (x) the dollar amount set forth opposite such Purchaser’s name on **Exhibit A** hereto under the heading “Shares Subscription Amount” divided by (y) the Market Price, rounded down to the nearest whole share, such number of Shares (as adjusted pursuant to this Section 1.1(a)) as set forth on **Exhibit A** hereto under the heading “Shares”; *provided, however*, in the event the number of Shares resulting from the foregoing calculation would result in such Purchaser, together with its Attribution Parties, beneficially owning in excess of such Purchaser’s Beneficial Ownership Limitation of the outstanding Common Stock immediately after the Closing, then (B) the number of Pre-Funded Warrants equal to the number of Shares otherwise issuable to such Purchaser at the Closing that would have resulted in such Purchaser beneficially owning, together with its Attribution Parties, more than such Purchaser’s Beneficial Ownership Limitation of the outstanding Common Stock immediately after the Closing, at a purchase price per Pre-Funded Warrant equal to the Market Price minus \$0.01, such number of Pre-Funded Warrants as set forth on **Exhibit A** hereto under the heading “Shares Underlying Pre-Funded Warrants” and in the form of Pre-Funded Warrant attached hereto as **Exhibit B-1**; and (C) a Standard Warrant in the form attached hereto as **Exhibit B-2** exercisable for a number of shares of Common Stock equal to seventy-five percent of the aggregate number of Shares and shares of Common Stock underlying Pre-Funded Warrants purchased by the Purchaser at the Closing, rounded down to the nearest whole share, such number of Standard Warrants as set forth on **Exhibit A** hereto under the heading “Shares Underlying Standard Warrants”. The Pre-Funded Warrants and Standard Warrants are referred to collectively as the “**Warrants**”, and the Shares,

Pre-Funded Warrants and Standard Warrants to be issued in the Closing are collectively referred to herein as the “**Securities**”.

**(b) Payment.** At the Closing, each Purchaser will pay to an account designated by the Company, by wire transfer of immediately available funds, the amount set forth opposite its name on **Exhibit A** hereto under the heading “Shares Subscription Amount” plus the product of (x) \$0.125 multiplied by (y) each share of Common Stock issuable upon exercise of the Standard Warrant (without regard to any exercise limitations set forth in the Standard Warrant) to be issued to such Purchaser at the Closing (the “**Warrants Subscription Amount**”). The Company will (i) instruct its transfer agent, Computershare Trust Company, N.A. (the “**Transfer Agent**”) to credit each Purchaser the number of Shares purchased by the Purchaser pursuant to Section 1.1 hereof, (ii) deliver to each Purchaser the Pre-Funded Warrant (if applicable) and Standard Warrant purchased by such Purchaser pursuant to Section 1.1 hereof and (iii) on the Closing Date (defined below) deliver written notice from the Company’s Transfer Agent to each Purchaser evidencing the issuance to the Purchaser of the Shares and Warrants on and as of the Closing Date. If the Closing does not occur by the Outside Date (as defined below) and any Purchaser shall have paid to the Company the amount set forth opposite its name on **Exhibit A** hereto under the headings “Shares Subscription Amount” and “Warrants Subscription Amount,” then the Company shall promptly (but not later than one (1) Business Day thereafter) return to each Purchaser the amount set forth opposite such Purchaser’s name on **Exhibit A** hereto under the headings “Shares Subscription Amount” and “Warrants Subscription Amount” and any book entries for the Shares shall be deemed repurchased and cancelled.

**(c) Closing Date.** The Closing will take place as soon as reasonably practicable after the date hereof but no later than February 17, 2023 (the “**Outside Date**”) (the date on which the Closing actually occurs, the “**Closing Date**”) and the Closing will be held remotely via the exchange of documents and signatures, or at such other place as agreed upon by the Company and the Purchasers.

## ARTICLE 2

### REPRESENTATIONS AND WARRANTIES OF THE COMPANY

Except as specifically contemplated by this Agreement, the Company hereby represents and warrants to the Purchasers and the Placement Agent as of the date of this Agreement that:

**2.1 Good Standing of the Company.** The Company has been duly incorporated, is validly existing as a corporation in good standing under the laws of the jurisdiction of its incorporation, has the corporate power and authority to own its property and to conduct its business as described in the reports, schedules, forms, statements, proxy statements and other documents required to be filed by it with the SEC, pursuant to the reporting requirements of the Exchange Act (all of the foregoing filed prior to the date hereof and all exhibits included therein and financial statements and schedules thereto and documents (other than exhibits) incorporated by reference therein, and including all registration statements and prospectuses filed with the SEC, the “**SEC Documents**”) and is duly qualified to transact business and is in good standing in each jurisdiction in which the conduct of its business or its ownership or leasing of property requires such qualification, and no proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such qualification, in each case, except to the extent that the failure to be so qualified or be in good standing would not have a Material Adverse Effect on the Company.

**2.2 Authorization of Capital Stock.** The authorized capital stock of the Company consists of 200,000,000 shares of Common Stock and 10,000,000 shares of Preferred Stock. As of December 31, 2022, 23,601,004 shares of Common Stock were issued and outstanding and no shares of Preferred Stock were issued and outstanding. The shares of capital stock of the Company, including the Common Stock outstanding prior to the issuance of the Shares, have been duly authorized and are validly issued, fully paid and non-assessable and were not issued in violation of the preemptive or similar rights of any security holder of the Company. The issuance and sale of the Securities will

not obligate the Company to issue shares of Common Stock or other securities to any Person (other than the Purchasers). There are no outstanding securities or instruments of the Company with any provision that adjusts the exercise, conversion, exchange or reset price of such security or instrument upon an issuance of securities by the Company. There are no outstanding securities or instruments of the Company that contain any redemption or similar provisions, and there are no contracts, commitments, understandings or arrangements by which the Company is or may become bound to redeem a security of the Company.

**2.3 Authorization of Shares.** The Shares, and the shares of Common Stock issuable upon exercise of the Pre-Funded Warrants and Standard Warrants (together, the “**Warrant Shares**”), have been duly authorized and, when issued and delivered in accordance with the terms of this Agreement (and, in the case of the Warrant Shares, the Warrants), will be validly issued, fully paid and non-assessable, and the issuance of such Shares and Warrant Shares will not be subject to any preemptive or similar rights of stockholders of the Company.

**2.4 Private Placement.** Neither the Company nor any of its Affiliates, nor any Person acting on its or their behalf, has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, or taken any other action under any circumstances that would require registration of the Securities under the Securities Act. Assuming the accuracy of the representations and warranties of the Purchasers contained in Article 3 hereof, the issuance of the Securities and the Warrant Shares are exempt from registration under the Securities Act.

**2.5 Authorization and Execution of Agreement.** This Agreement has been duly authorized, executed and delivered by the Company. The Company has all requisite corporate power and authority to execute, deliver and perform its obligations under this Agreement. All corporate action required to be taken by the Board of Directors of the Company and stockholders in order to authorize the Company to enter into this Agreement, and to issue the Securities at the Closing, and the Warrant Shares upon exercise of the Warrants, has been taken or will be taken prior to the Closing. All action on the part of the officers of the Company necessary for the execution and delivery of this Agreement, the performance of all obligations of the Company under this Agreement to be performed as of the Closing, and the issuance and delivery of the Securities and the Warrant Shares upon exercise of the Warrants has been taken or will be taken prior to the Closing. This Agreement, when executed and delivered by the Company, shall constitute the valid and legally binding obligation of the Company, enforceable against the Company in accordance with its terms except (i) as limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors’ and contracting parties’ rights generally (ii) as limited by laws relating to the availability of specific performance, injunctive relief, or other equitable remedies, or (iii) to the extent the indemnification provisions contained in Section 6.6 may be limited by applicable federal or state securities laws.

**2.6 Absence of Defaults and Conflicts.** The Company is not (i) in violation of its charter, by-laws or similar incorporation or organizational documents, (ii) in violation or default in the performance or observance of any obligation, agreement, covenant or condition contained in any contract, indenture, mortgage, deed of trust, loan or credit agreement, note, lease or other agreement or instrument to which the Company is a party or by which it may be bound, or to which any of the property or assets of the Company is subject or (iii) in violation of any instrument, judgment, order, writ or decree (collectively, “**Agreements and Instruments**”), except in the case of clauses (ii) and (iii), for such violations and defaults that would not result in a Material Adverse Effect on the Company; and the execution, delivery and performance of this Agreement and the consummation of the transactions contemplated in this Agreement, and compliance by the Company with its obligations under this Agreement, do not and will not, whether with or without the giving of notice or passage of time or both, conflict with or result in a breach of any of the terms and provisions of, or constitute a default or Repayment Event (as defined below) under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company pursuant to, the Agreements and Instruments, nor will such action result in any violation of the provisions of the charter, by-laws or similar organizational documents of the Company or any applicable law, statute, rule, regulation, judgment, order, writ or decree of any government, government instrumentality or court, domestic or foreign, having jurisdiction over the Company or any of its assets, properties or operations, except in each case (other than with respect to such charter, by-laws or similar organizational documents of the Company) for such conflicts, violations,

breaches or defaults which would not reasonably be expected to result in a Material Adverse Effect on the Company. As used herein, a “**Repayment Event**” means any event or condition which gives the holder of any note, debenture or other evidence of indebtedness that is material to the operations or financial results of the Company (or any person acting on such holder’s behalf) the right to require the repurchase, redemption or repayment of all or a portion of such indebtedness by the Company.

**2.7 Absence of Further Requirements.** No filing with, or authorization, approval, consent, license, order, registration, exemption, qualification or decree of, any court or governmental authority or agency or any sub-division thereof is required for the performance by the Company of its obligations hereunder, in connection with the offering, issuance or sale of the Securities and Warrant Shares under this Agreement or the consummation of the transactions contemplated by this Agreement, except such as have been already obtained or as may be required under the Securities Act or the rules and regulations of the SEC thereunder, state securities or blue sky laws, the rules and regulations of the Financial Industry Regulatory Authority, Inc. (“**FINRA**”) or Nasdaq.

**2.8 No Material Adverse Effect.** Except as otherwise disclosed in the SEC Documents, subsequent to the respective dates as of which information is given in the SEC Documents:

(a) the Company has not sustained any material loss or material interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree,

(b) there has not been any change in the capital stock or increase in short-term or long-term debt of the Company, other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise of outstanding options, the vesting and settlement of restricted stock units or the automatic increases in shares of Common Stock available under the Company’s incentive plans, in each case, as described in the SEC Documents,

(c) there has not been any change in the assets, liabilities, financial condition or operating results of the Company from that reflected in the financial statements included in the SEC Documents, except changes in the ordinary course of business that have not caused, individually or in the aggregate, a Material Adverse Effect,

(d) there has not been any waiver or compromise by the Company of a valuable right or of a material debt owed to it,

(e) there has not been any satisfaction or discharge of any lien, claim or encumbrance or payment of any obligation by the Company, except in the ordinary course of business and which is not material to the assets, properties, financial condition, operating results or business of the Company (as such business is presently conducted),

(f) there has not been any change or amendment to the Company’s Certificate of Incorporation or Bylaws, or material change to any material contract or arrangement by which the Company is bound or to which any of its assets or properties is subject,

(g) there has not been any material labor difficulties or, to the Company’s knowledge, labor union organizing activities with respect to employees of the Company,

(h) there has not been any material transaction entered into by the Company other than in the ordinary course of business,

(i) there has not been any loss of the services of any executive officer (as defined in Rule 405 under the Securities Act) and

(j) there has not occurred any Material Adverse Effect, or any development that would reasonably be expected to result in a prospective Material Adverse Effect, in or affecting the condition, financial or otherwise, or in or affecting the revenues, business, assets, management, financial position, stockholders' equity, operations or results of operations or prospects of the Company.

**2.9 Absence of Proceedings.** There are no legal or governmental proceedings, inquiries or investigations pending or, to the Company's knowledge, threatened to which the Company or any officer or director of the Company (in their capacity as such) is a party or to which any of the properties of the Company is subject, other than proceedings accurately described in all material respects in the SEC Documents or proceedings that would not have a Material Adverse Effect on the Company, or on the power or ability of the Company to perform its obligations under this Agreement or to consummate the transactions contemplated by this Agreement.

**2.10 Investment Company Act of 1940.** The Company is not, and after giving effect to the offering and sale of the Securities and the application of the proceeds thereof as described herein will not be, required to register as an "investment company" as such term is defined in the Investment Company Act of 1940, as amended.

**2.11 Registration Rights.** Except as described in the SEC Documents, there are no contracts, agreements or understandings between the Company and any person granting such person the right to require the Company to file a registration statement under the Securities Act with respect to any securities of the Company or to require the Company to include such securities with the Shares and Warrant Shares registered pursuant to a Registration Statement other than rights that have been validly waived.

**2.12 Title to Real and Personal Property.** Except as set forth in the SEC Documents, the Company has good and marketable title in fee simple to all real property and good and marketable title to all personal property owned by it which is material to the business of the Company, in each case free and clear of all liens, encumbrances and defects, except such as are described in the SEC Documents or such as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company; and any real property and buildings held under lease by the Company are held by it under valid, subsisting and enforceable leases with such exceptions as are not material and do not interfere with the use made and proposed to be made of such property and buildings by the Company.

**2.13 Intellectual Property Rights.** (i) Except as disclosed in the SEC Documents, or as would not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect, and to the Company's knowledge, the Company owns, possesses or has the legal right to all patents, trademarks, service marks, trade names, domain names and other source indicators, copyrights and copyrightable works, know-how (including trade secrets, data and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), software, proprietary or confidential information and all other worldwide intellectual property and proprietary rights (including all registrations, and applications for registration of, and all goodwill associated with, the foregoing) (collectively, "**Intellectual Property**") used in, or necessary for, the conduct of its business as currently conducted and as proposed to be conducted as disclosed in the SEC Documents; (ii) to the Company's knowledge, the Company's conduct of its businesses has not infringed, misappropriated or otherwise violated in any material respect, and does not infringe, misappropriate or otherwise violate in any material respect, any valid and enforceable Intellectual Property rights of any person; (iii) except as disclosed in the SEC Documents, there is no claim, action, suit, investigation or proceeding pending against, or, to the Company's knowledge, threatened against, the Company (A) based upon, or challenging or seeking to deny or restrict, any rights of the Company in any Intellectual Property owned by or exclusively licensed by the Company, (B) challenging the ownership, validity, enforceability or scope of any Intellectual Property owned or exclusively licensed by the Company, or (C) alleging that the Company has infringed, misappropriated or otherwise violated any Intellectual Property of any person in any material respect; (iv) to the Company's knowledge, the Intellectual Property owned or exclusively licensed by the Company has not been infringed, misappropriated or otherwise violated by any person; (v) none of the Intellectual Property owned or exclusively licensed by the Company has been adjudged invalid or unenforceable and, to the Company's

knowledge, all Intellectual Property owned or exclusively licensed by the Company is valid and enforceable; (vi) the Company has taken reasonable steps in accordance with normal industry practice to maintain the confidentiality of all Intellectual Property of the Company the value of which to the Company is contingent upon maintaining the confidentiality thereof, and, to the Company's knowledge, no such Intellectual Property has been disclosed other than to employees, representatives, and agents of the Company, all of whom are bound by written confidentiality agreements; (vii) no present or former employee, officer, or director of the Company, or agent or outside contractor or consultant of the Company, holds any right, title or interest, directly or indirectly, in whole or in part, in or to any Intellectual Property owned, purported to be owned, or licensed by the Company; (viii) each current and former employee and officer of the Company has executed an agreement with the Company regarding confidentiality and proprietary information in the form or forms made available to counsel for the Purchasers; and (ix) no employee of the Company has misappropriated any trade secrets or other confidential information of any other Person in the course of the performance of his or her duties as an employee of the Company.

The computer software, computer hardware, firmware, networks, interfaces and related systems (collectively, "**Computer Systems**") used by the Company are sufficient for the conduct of the Company's business in all material respects as now conducted or as proposed in the SEC Documents to be conducted, and there have been no material failures, crashes, security breaches or other adverse events affecting the Computer Systems which has caused material disruption to the business of the Company. The Company, and any directors, members, employees, agents, officers, managers, and other representatives of any of the Company, comply with and have at all times complied with, in all material respects, all Privacy Laws applicable to the Company or to the conduct of the business or operations of the Company.

**2.14Insurance.** Except as set forth in the SEC Documents, the Company is insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are prudent and customary in the business in which it is engaged; the Company has not been refused any coverage sought or applied for; and the Company does not have any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect on the Company.

**2.15Licenses and Permits.** Except as set forth in the SEC Documents, the Company possesses all certificates, authorizations, consents, approvals, orders, licenses and permits issued by the appropriate federal, state or foreign regulatory authorities (collectively, the "**Permits**"), including the FDA and any other state, federal or foreign agencies or bodies engaged in the regulation of pharmaceuticals or biohazardous materials, necessary to conduct its business as now conducted and described in the SEC Documents, other than such certificates, authorizations, consents, approvals, orders, licenses and permits, the lack of which would not individually or in the aggregate have a Material Adverse Effect on the Company. Except as otherwise disclosed in the SEC Documents, all of such Permits are valid and in full force and effect, except where the invalidity of such Permits or the failure to be in full force and effect, individually or in the aggregate, would not have a Material Adverse Effect on the Company. Except as otherwise disclosed in the SEC Documents, there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or investigation that individually or in the aggregate would reasonably be expected to lead to the revocation, modification, termination, suspension or any other impairment of the rights of the holder of any such Permit which revocation, modification, termination, suspension or other impairment would have a Material Adverse Effect on the Company.

**2.16FDA.** As to each product subject to the jurisdiction of the FDA under the Federal Food, Drug and Cosmetic Act, as amended, and the regulations thereunder ("**FDCA**") that is manufactured, packaged, labeled, tested, distributed, sold, and/or marketed by the Company (each such product, a "**Pharmaceutical Product**"), such Pharmaceutical Product is being manufactured, packaged, labeled, tested, distributed, sold and/or marketed by the Company in compliance with all applicable requirements under FDCA and similar laws, rules and regulations relating to registration, investigational use, premarket clearance, licensure, or application approval, good manufacturing practices, good laboratory practices, good clinical practices, product listing, quotas, labeling,

advertising, record keeping and filing of reports, except where the failure to be in compliance would not have a Material Adverse Effect. There is no pending, completed or, to the Company's knowledge, threatened, action (including any lawsuit, arbitration, or legal or administrative or regulatory proceeding, charge, complaint, or investigation) against the Company, and the Company has not received any notice, warning letter or other communication from the FDA or any other governmental entity, which (i) contests the premarket clearance, licensure, registration, or approval of, the uses of, the distribution of, the manufacturing or packaging of, the testing of, the sale of, or the labeling and promotion of any Pharmaceutical Product, (ii) withdraws its approval of, requests the recall, suspension, or seizure of, or withdraws or orders the withdrawal of advertising or sales promotional materials relating to, any Pharmaceutical Product, (iii) imposes a clinical hold on any clinical investigation by the Company, (iv) enjoins production at any facility of the Company, (v) enters or proposes to enter into a consent decree of permanent injunction with the Company, or (vi) otherwise alleges any violation of any laws, rules or regulations by the Company, and which, either individually or in the aggregate, would have a Material Adverse Effect. The properties, business and operations of the Company have been and are being conducted in all material respects in accordance with all applicable laws, rules and regulations of the FDA. The Company has not been informed by the FDA that the FDA will prohibit the marketing, sale, license or use in the United States of any product proposed to be developed, produced or marketed by the Company.

**2.17 Accounting Controls.** The Company has taken all actions reasonably necessary to ensure that, within the time period required by applicable law, the Company will have established and will maintain a system of internal control over financial reporting (as such term is defined in Rule 13a-15(f) under the Exchange Act) sufficient to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with United States generally accepted accounting principles (“**U.S. GAAP**”). Except as set forth in the SEC Documents, since the end of the Company’s most recent audited fiscal year, there has been (A) no material weakness in the Company’s internal control over financial reporting (whether or not remediated) and (B) no change in the Company’s internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company’s internal control over financial reporting.

**2.18 Disclosure Controls.** The Company maintains disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Exchange Act) that comply with the applicable requirements of the Exchange Act; and such disclosure controls and procedures have been designed to ensure that (i) material information relating to the Company is made known to the Company’s principal executive officer and principal financial officer by others within the Company and (ii) information required to be disclosed by the Company in reports that it files, furnishes or submits under the Exchange Act is recorded, processed, summarized and reported within the timeframes specified in the SEC’s rules and forms, including controls and procedures designed to ensure that such information is accumulated and communicated the Company’s management as appropriate to allow timely decisions regarding required disclosure. The Company has carried out evaluations of the effectiveness of its disclosure controls and procedures as required by Rule 13a-15 of the Exchange Act. Since the end of the Company’s most recent audited fiscal year, there have been no identified material weaknesses in the Company’s internal control over financial reporting (whether or not remediated) and no change in the Company’s internal control over financial reporting that has materially affected, or would reasonably be expected to materially affect, the Company’s internal control over financial reporting. The Company is not aware of any change in its internal controls over financial reporting that has occurred during its most recent fiscal quarter that has materially affected, or would reasonably be expected to materially affect, the Company’s internal control over financial reporting.

**2.19 Independent Accountants.** BDO USA, LLP, who have certified the financial statements and supporting schedules of the Company that are included in the SEC Documents and which will be included as a part of the Registration Statement, is an independent registered public accounting firm with respect to the Company as required by the Securities Act and the rules and regulations of the SEC thereunder.

**2.20 SEC Documents.** The Company has timely filed or furnished the SEC Documents required to be filed or furnished by it with the SEC pursuant to the reporting requirements of the Exchange Act. As of their respective

dates, the SEC Documents complied in all material respects with the requirements of the Exchange Act or the Securities Act, as the case may be, and the rules and regulations of the SEC promulgated thereunder applicable to the SEC Documents, and none of the SEC Documents (including any audited or unaudited financial statements and any notes thereto or schedules included therein), at the time they were filed with the SEC, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. There are no material outstanding or unresolved comments in comment letters from the staff of the Division of Corporation Finance of the SEC with respect to any of the SEC Documents as of the date hereof. The Company meets the requirements for use of Form S-3 under the Securities Act. At the time of filing thereof, the SEC Documents complied as to form in all material respects with the requirements of the Securities Act or the Exchange Act, as applicable, and the rules and regulations of the SEC thereunder.

**2.21 Financial Statements.** (a) The financial statements included in the SEC Documents, together with the related schedules and notes, present fairly, in all material respects, the financial position of the Company at the dates indicated and the statement of operations, stockholders' equity and cash flows of the Company for the periods specified; said financial statements have been prepared in conformity with U.S. GAAP applied on a consistent basis throughout the periods involved except, in the case of unaudited interim financial statements, for normal year-end audit adjustments and the exclusion of footnotes. (b) Except as set forth in the SEC Documents, there are no off-balance sheet arrangements, outstanding guarantees or other contingent obligations of the Company that would reasonably be expected to have a Material Adverse Effect on the Company. There are no transactions, arrangements or other relationships between and/or among the Company, any of its affiliates (as such term is defined in Rule 405 of the Securities Act) and any unconsolidated entity, including, but not limited to, any structured finance, special purpose or limited purpose entity, that would reasonably be expected to materially affect the Company's liquidity or the availability of or requirements for its capital resources required to be described in SEC Documents which have not been described as required.

**2.22 Tax Liabilities and Reserves.** Other than as set forth in the SEC Documents, any tax returns required to be filed by the Company in any jurisdiction have been filed and any taxes, including any withholding taxes, excise taxes, penalties and interest, assessments and fees and other charges due or claimed to be due from the Company have been paid, other than any of those being contested in good faith and for which adequate reserves have been provided or any of those currently payable without penalty or interest, except to the extent that the failure to so file or pay would not result in a Material Adverse Effect on the Company. There is no material proposed tax deficiency, assessment, charge or levy against the Company, as to which a reserve would be required to be established under U.S. GAAP, that has not been so reserved or that should be disclosed in the SEC Documents that has not been so disclosed, except for any such deficiency, assessment, charge or levy which, individually or in the aggregate, would not have a Material Adverse Effect on the Company.

**2.23 Related Party Transactions.** Other than the transactions contemplated by this Agreement, no relationship, direct or indirect, exists between or among the Company, on the one hand, and the directors, officers, stockholders, licensees, licensors or suppliers of the Company, on the other hand, that is required to be described in the SEC Documents which is not so described. There are no outstanding loans, advances (except normal advances for business expense in the ordinary course of business) or guarantees of indebtedness by the Company, to or for the benefit of any of the officers or directors of the Company or any of their respective family members, except as otherwise disclosed in the SEC Documents.

**2.24 Commission Agreements.** The Company is not a party to any contract, agreement or understanding with any person that would give rise to a valid claim against the Company or the Placement Agent for a brokerage commission, finder's fee or like payment in connection with any transaction contemplated by this Agreement, except for dealings with the Placement Agent, whose commissions and fees will be paid by the Company.



**2.25 Foreign Corrupt Practices Act.** Except as otherwise disclosed in the SEC Documents, neither the Company nor, to the Company's knowledge, any of its affiliates, directors, officers, employees, agents or other person acting on behalf of the Company is aware of or has taken any action, directly or indirectly, that would result in a material violation by such person of the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (the "**FCPA**"), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of money, or other property, gift, promise to give, or authorization of the giving of anything of value to any "foreign official" (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA and the Company and, to the Company's knowledge, its affiliates have conducted their businesses in material compliance with the FCPA and any other applicable anti-bribery or anti-corruption law, and have instituted and maintain policies and procedures designed to ensure, and which are reasonably expected to continue to ensure, continued compliance therewith.

**2.26 Use of Proceeds.** The Company shall use the net proceeds of the sale of the Securities hereunder for non-clinical and clinical development activities for its product candidate, pre-commercial activities and general corporate purposes.

**2.27 Acknowledgment Regarding Purchasers' Purchase of Securities.** The Company acknowledges and agrees that each of the Purchasers is acting solely in the capacity of an arm's length purchaser with respect to this Agreement and the transactions contemplated hereby. The Company further acknowledges that no Purchaser is acting as a financial advisor or fiduciary of the Company (or in any similar capacity with respect to the Company) with respect to this Agreement, the transactions contemplated hereby or the process leading thereto, the Purchasers have no obligation to the Company with respect to the transactions contemplated by this Agreement except those obligations expressly set forth in this Agreement to which they are a party, and any advice given by any Purchaser or any of their respective representatives or agents to the Company in connection with this Agreement and the transactions contemplated hereby is merely incidental to such Purchaser's purchase of the Securities. The Company further represents to each Purchaser that the Company's decision to enter into this Agreement has been based on the independent evaluation of the transactions contemplated hereby by the Company and its representatives.

**2.28 No Reliance.** The Company has not relied upon the Placement Agent for any legal, tax or accounting advice in connection with the offering and sale of the Securities.

**2.29 No Manipulation of Stock.** The Company has not taken, and no Person acting on its behalf has taken, directly or indirectly, any action designed to cause or result in the stabilization or manipulation of the price of the Common Stock or any security of the Company to facilitate the sale or resale of any of the Securities.

**2.30 Never a Shell Company.** The Company has never been an issuer subject to Rule 144(i) under the Securities Act.

**2.31 Listing and Maintenance Requirements.** The Common Stock is registered pursuant to Section 12(b) or 12(g) of the Exchange Act, and the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act nor has the Company received any notification that the SEC is contemplating terminating such registration. The Common Stock is currently eligible for electronic transfer through the Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees to the Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.

**2.32 The Nasdaq Global Select Market.** The Common Stock is listed on The Nasdaq Global Select Market, and to the Company's knowledge, there are no proceedings to revoke or suspend such listing. Except as otherwise disclosed in the SEC Documents, the Company is in material compliance with the requirements of Nasdaq for continued listing of the Common Stock thereon and any other Nasdaq listing and maintenance requirements.

**2.33No Disqualification Events.** None of the Company, any of its predecessors, any director, executive officer, other officer of the Company participating in the offering contemplated hereby, any beneficial owner (as that term is defined in Rule 13d-3 under the Exchange Act) of 20% or more of the Company's outstanding voting equity securities, calculated on the basis of voting power, any "**promoter**" (as that term is defined in Rule 405 under the Securities Act) connected with the Company in any capacity at the time of the Closing, the Placement Agent or any dealer participating in the offering of the Shares and any of such Placement Agent's or dealer's directors, executive officers, other officers participating in the offering of the Shares (each, a "**Covered Person**" and, together, "**Covered Persons**") is subject to any of the "**Bad Actor**" disqualifications described in Rule 506(d)(1)(i) to (viii) under the Securities Act (a "**Disqualification Event**"). The Company has exercised reasonable care to determine (i) the identity of each person that is a Covered Person; and (ii) whether any Covered Person is subject to a Disqualification Event. The Company has complied, to the extent applicable, with its disclosure obligations under Rule 506(e). With respect to each Covered Person, the Company has established procedures reasonably designed to ensure that the Company receives notice from each such Covered Person, and will notify the Purchasers and the Placement Agent in writing, of (x) any Disqualification Event relating to that Covered Person, and (y) any event that would, with the passage of time, become a Disqualification Event relating to that Covered Person; in each case occurring up to and including the Closing Date. The Company is not for any other reason disqualified from reliance upon Rule 506 of Regulation D for purposes of the offer and sale of the Shares.

**2.34No Additional Agreements.** The Company has no other agreements or understandings (including, without limitation, side letters) with any Purchaser to purchase any of the Securities on terms more favorable to such Purchaser than as set forth herein.

**2.35Subsidiaries.** The Company does not have any subsidiaries and does not otherwise own any shares of capital stock or any interest in any other Person. The Company does not control directly or indirectly or have any direct or indirect equity participation or similar interest in any corporation, partnership, limited liability company, joint venture, trust or other business association or entity.

**2.36Subchapter C Corporation.** The Company is classified as a Subchapter C corporation for U.S. federal tax purposes.

**2.37Acknowledgement Regarding Purchaser's Trading Activity.** Anything in this Agreement or elsewhere herein to the contrary notwithstanding (except for Section 4.8 hereof), it is understood and acknowledged by the Company that: (i) none of the Purchasers has been asked by the Company to agree, nor has any Purchaser agreed, to desist from purchasing or selling, long and/or short, securities of the Company, or "derivative" securities based on securities issued by the Company or to hold the Securities for any specified term; (ii) past or future open market or other transactions by any Purchaser, specifically including, without limitation, Short Sales or "derivative" transactions, before or after the closing of this or future private placement transactions, may negatively impact the market price of the Company's publicly-traded securities; (iii) any Purchaser, and counter-parties in "derivative" transactions to which any such Purchaser is a party, directly or indirectly, presently may have a "short" position in the shares, and (iv) each Purchaser shall not be deemed to have any affiliation with or control over any arm's length counter-party in any "derivative" transaction. The Company further understands and acknowledges that (y) one or more Purchasers may engage in hedging activities at various times during the period that the Securities are outstanding, and (z) such hedging activities (if any) could reduce the value of the existing stockholders' equity interests in the Company at and after the time that the hedging activities are being conducted. The Company acknowledges that such aforementioned hedging activities do not constitute a breach of any of the Transaction Documents.

Any certificate signed by an authorized officer of the Company and required to be delivered to the Placement Agent in connection with this Agreement shall be deemed to be a representation and warranty by the Company to the Placement Agent as to the matters set forth therein.

## ARTICLE 3

### PURCHASER'S REPRESENTATIONS AND WARRANTIES

Each Purchaser represents and warrants to the Company and the Placement Agent, severally and not jointly, with respect to itself and its purchase hereunder, that as of the Closing (or, in the case of Section 3.1, as of the date of this Agreement):

**3.1 Investment Purpose.** The Purchaser is purchasing the Securities for its own account and not with a present view, toward the public sale or distribution thereof and has no intention of selling or distributing any of such Securities or any arrangement or understanding with any other Persons regarding the sale or distribution of such Securities except as would not result in a violation of the Securities Act. The Purchaser will not, directly or indirectly, offer, sell, pledge, transfer or otherwise dispose of (or solicit any offers to buy, purchase or otherwise acquire or take a pledge of) any of the Securities except pursuant to and in accordance with the Securities Act.

**3.2 Information.** The Purchaser has been furnished with all relevant materials relating to the business, finances and operations of the Company necessary to make an investment decision, and materials relating to the offer and sale of the Securities, that have been requested by the Purchaser, including, without limitation, the SEC Documents, and the Purchaser has had the opportunity to review the SEC Documents. The Purchaser has been afforded the opportunity to ask questions of the Company. Neither such inquiries nor any other investigation conducted by or on behalf of such Purchaser or its representatives or counsel shall modify, amend or affect such Purchaser's right to rely on the truth, accuracy and completeness of the SEC Documents and the Company's representations and warranties contained in the Agreement. The Purchaser also specifically acknowledges that the Company would not enter into this Agreement or any related documents in the absence of such Purchaser's representations and acknowledgments set out in this Agreement, and that this Agreement, including such representations and acknowledgments, are a fundamental inducement to the Company, and a substantial portion of the consideration provided by such Purchaser, in this transaction, and that the Company would not enter into this transaction but for this inducement.

#### **3.3 Acknowledgement of Risk.**

(a) The Purchaser acknowledges and understands that its investment in the Securities involves a significant degree of risk, including, without limitation, (i) the Company remains a development stage business with limited operating history and requires substantial funds in addition to the proceeds from the sale of the Securities; (ii) an investment in the Company is speculative, and only Purchasers who can afford the loss of their entire investment should consider investing in the Company and the Securities; (iii) the Purchaser may not be able to liquidate its investment; (iv) transferability of the Securities is extremely limited; (v) in the event of a disposition of the Securities, the Purchaser could sustain the loss of its entire investment; and (vi) the Company has not paid any dividends on its Common Stock since inception and does not anticipate the payment of dividends in the foreseeable future. Such risks are more fully set forth in the SEC Documents;

(b) The Purchaser is able to bear the economic risk of holding the Securities for an indefinite period, and has knowledge and experience in financial and business matters such that it is capable of evaluating the risks of the investment in the Securities; and

(c) The Purchaser has, in connection with the Purchaser's decision to purchase the Securities, not relied upon any representations or other information (whether oral or written) other than as set forth in the representations and warranties of the Company contained herein and the information disclosed in the SEC Documents, and the Purchaser has, with respect to all matters relating to this Agreement and the offer and sale of the Securities, relied solely upon the advice of such Purchaser's own counsel and has not relied upon or consulted any counsel to the Placement Agent or counsel to the Company.

**3.4 Governmental Review.** The Purchaser understands that no United States federal or state agency or any other government or governmental agency has passed upon or made any recommendation or endorsement of the Securities or an investment therein.

**3.5 Transfer or Resale.** The Purchaser understands that:

(a) the offer and sale of the Securities has not been and is not being registered under the Securities Act (other than as contemplated in Article 6) or any applicable state securities laws and, consequently, the Purchaser may have to bear the risk of owning the Securities for an indefinite period of time because the Securities may not be transferred unless (i) the resale of the Securities is registered pursuant to an effective registration statement under the Securities Act, as contemplated in Article 6; or (ii) the Securities are sold or transferred pursuant to Rule 144 or another available exemption from the registration requirements of the Securities Act;

(b) any sale of the Securities made in reliance on Rule 144 may be made only in accordance with the terms of Rule 144 and, if Rule 144 is not applicable, any resale of the Securities under circumstances in which the seller (or the Person through whom the sale is made) is deemed to be an underwriter (as that term is defined in the Securities Act) may require compliance with some other exemption under the Securities Act or the rules and regulations of the SEC thereunder; and

(c) except as set forth in Article 6, neither the Company nor any other Person is under any obligation to register the resale of the Securities under the Securities Act or any state securities laws or to comply with the terms and conditions of any exemption thereunder.

**3.6 Legends.**

(a) The Purchaser understands the book entries representing the Securities will bear a restrictive legend in substantially the following form, in addition to any other legend required by applicable state securities laws or as may be appropriate to legend any restrictions on transfer set forth in this Agreement (and a stop-transfer order may be placed against transfer of the book entries for such Securities):

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES. THE SECURITIES MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED, HYPOTHECATED, TRANSFERRED OR ASSIGNED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FOR THE SECURITIES UNDER APPLICABLE SECURITIES LAWS, OR UNLESS OFFERED, SOLD, PLEDGED, HYPOTHECATED OR TRANSFERRED PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THOSE LAWS.

(b) To the extent the resale of any issued Shares or Warrant Shares is registered under the Securities Act pursuant to an effective Registration Statement, the Company agrees to promptly (i) authorize the removal of the legend set forth in Section 3.6(a) and any other legend not required by applicable law from such Shares or Warrant Shares, (ii) cause its Transfer Agent to issue such Shares or Warrant Shares without such legends to the holders thereof by electronic delivery at the applicable balance account at the Depository Trust Company and (iii) if required by the Company's Transfer Agent or requested by a Purchaser, cause its counsel to issue a legal opinion to effect the removal of any restrictive legends. The Company's obligation to remove legends under this Section 3.6(b) may be conditioned upon the Purchaser providing such customary representations and documentation as the Company or its legal counsel deems reasonably necessary in connection with the removal of restrictive legends (the "**Representation Letter**"), provided that the Company agrees to notify the Purchaser of any such necessary representations or documentation as soon as reasonably practicable (which shall generally be within one Business Day following a request by a Purchaser). With respect to any Shares or Warrant Shares for which restrictive legends are removed pursuant to this Section 3.6(b), the holder thereof agrees to only sell such Shares or Warrant Shares

when and as permitted by the effective Registration Statement covering such resale and in accordance with applicable securities laws and regulations, or in accordance with Rule 144 or another available exemption from the registration requirements of the Securities Act. Prior to the Company and its Transfer Agent agreeing to the form of the Representation Letter, the Company shall allow the Purchasers to review and comment on such form. In no event shall a Purchaser be required, in the Representation Letter or otherwise, to represent, warrant, agree, acknowledge, or covenant for the Shares or Warrant Shares to be re-legended.

(c) The Purchaser may request that the Company remove, and the Company agrees to authorize the removal of any legend from any Shares or Warrant Shares issued to such Purchaser (i) following any sale, or certification by a Purchaser of the expected sale, of such Shares or Warrant Shares pursuant to Rule 144, or (ii) if such Shares or Warrant Shares are eligible for sale under Rule 144 following the expiration of the one-year holding requirement under subparagraphs (b)(1)(i) and (d) thereof and the Purchaser is not an affiliate of the Company, in each case following receipt from the Purchaser of an appropriate certification to such effect. Following the time a legend is no longer required for the Shares or Warrant Shares under this Section 3.6(c), the Company will, no later than two Trading Days following the delivery by a Purchaser to the Company or the Company's Transfer Agent of the appropriate certifications that the applicable requirements have been satisfied deliver or cause to be delivered to such Purchaser a certificate or evidence of book entry representing such securities that is free from all restrictive and other legends or, in the case of Shares or Warrant Shares, if requested by Purchaser, by crediting such Shares or Warrant Shares to the account of the Purchaser or its designee with The Depository Trust Company through its Deposit or Withdrawal at Custodian system ("**DWAC**") if the Company is then a participant in such system ("**DWAC Delivery**"). The Company shall be responsible for the fees of its Transfer Agent and all DTC fees associated with such issuance.

**3.7 Authorization; Enforcement.** The Purchaser has the requisite power and authority to enter into this Agreement and to consummate the transactions contemplated hereby. The Purchaser has taken all necessary action to authorize the execution, delivery and performance of this Agreement. Upon the execution and delivery of this Agreement, this Agreement shall constitute a valid and binding obligation of the Purchaser enforceable in accordance with its terms, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' and contracting parties' rights generally and except as enforceability may be subject to general principles of equity and except as rights to indemnity and contribution may be limited by state or federal securities laws or public policy underlying such laws.

**3.8 Residency.** Unless the Purchaser has otherwise notified the Company in writing, the Purchaser is a resident of the jurisdiction set forth immediately below such Purchaser's name on the signature pages hereto.

**3.9 Accredited Investor Status.** Such Purchaser is an "accredited investor" as that term is defined in Rule 501(a) of Regulation D.

**3.10 Acknowledgements Regarding Placement Agent.**

(a) The Purchaser acknowledges that the Placement Agent is acting as a placement agent on a "best efforts" basis for the Securities being offered hereby and will be compensated by the Company for acting in such capacity. The Purchaser represents that (i) the Purchaser was contacted regarding the sale of the Securities by the Placement Agent or the Company (or an authorized agent or representative thereof) with whom the Purchaser entered into a verbal or written confidentiality agreement and (ii) to its knowledge, no Securities were offered or sold to it by means of any form of general solicitation or general advertising as such terms are used in Regulation D of the Securities Act.

(b) The Purchaser represents that it is making this investment based on the results of its own due diligence investigation of the Company (including without limitation, review of representations and warranties provided by the Company herein), and has not relied on any information or advice furnished by or on behalf of the

Placement Agent in connection with the transactions contemplated hereby. The Purchaser acknowledges that the Placement Agent has not made, and will not make, any representations and warranties with respect to the Company or the transactions contemplated hereby, and the Purchaser will not rely on any statements made by the Placement Agent, orally or in writing, to the contrary.

**3.11 Beneficial Ownership.** Each Purchaser represents that the purchase by such Purchaser of the Shares will not result in such Purchaser (individually or together with any other person with whom such Purchaser has identified, or will have identified, itself as part of a “group” in a public filing made with the SEC involving the Company’s securities) acquiring, or obtaining the right to acquire, in excess of 19.999% of the outstanding shares of Common Stock or the voting power of the Company on a post-transaction basis that assumes that the Closing shall have occurred. Each Purchaser does not presently intend to, alone or together with others, make a public filing with the SEC to disclose that it has (or that it together with such other persons have) acquired, or obtained the right to acquire, as a result of the Closing (when added to any other securities of the Company that it or they then own or have the right to acquire), in excess of 19.999% of the outstanding shares of Common Stock or the voting power of the Company on a post-transaction basis that assumes that the Closing shall have occurred.

## ARTICLE 4

### COVENANTS

**4.1 Reporting Status.** The Company’s Common Stock is registered under Section 12 of the Exchange Act. During the Registration Period, the Company will timely file all documents with the SEC, and the Company will not terminate its status as an issuer required to file reports under the Exchange Act even if the Exchange Act or the rules and regulations thereunder would permit such termination.

**4.2 Expenses.** The Company and each Purchaser shall be liable for, and will pay, its own expenses incurred in connection with the negotiation, preparation, execution and delivery of this Agreement, including, without limitation, attorneys’ and consultants’ fees and expenses.

**4.3 Financial Information.** The financial statements of the Company to be included in any documents filed with the SEC will be prepared in accordance with accounting principles generally accepted in the United States, consistently applied (except (i) as may be otherwise indicated in such financial statements or the notes thereto, or (ii) in the case of unaudited interim statements, to the extent they may not include footnotes, may be condensed or summary statements or may conform to the SEC’s rules and instructions for Quarterly Reports on Form 10-Q), and will fairly present in all material respects the financial position of the Company and results of its operations and cash flows as of, and for the periods covered by, such financial statements (subject, in the case of unaudited statements, to normal and recurring year-end audit adjustments).

**4.4 Securities Laws Disclosure; Publicity.** On or before the first Business Day following the date hereof, the Company shall file a Current Report on Form 8-K with the SEC describing the terms of the transactions contemplated by this Agreement and including as an exhibit to such Current Report on Form 8-K this Agreement, in the form required by the Exchange Act. From and after the filing of such Current Report on Form 8-K or, if sooner, upon the Company’s issuance of a press release (such press release or Current Report on Form 8-K the “*Cleansing Disclosure*”) describing the terms of the transactions contemplated by this Agreement, the Company represents to the Purchasers that it shall have publicly disclosed the material terms and conditions of the transactions contemplated by this Agreement. Notwithstanding anything in this Agreement to the contrary, the Company shall not publicly disclose the name of any Purchaser or any of their respective Affiliates or Attribution Parties or investment advisers, or include the name of any Purchaser or any of their respective Affiliates or Attribution Parties or investment advisers (i) in any press release or marketing materials without the prior written consent of such Purchaser or (ii) in any filing with SEC or any regulatory agency or trading market, without the prior written consent of such Purchasers, except (A) as required by the federal securities law in connection with any Registration

Statement, (B) the filing of this Agreement (or a form of this Agreement) with the SEC, and (C) to the extent such disclosure is required by law, is requested by the Staff of the SEC or a regulatory agency or under the regulations of NASDAQ, in which case the Company shall provide such Purchasers with prior written notice of such disclosure permitted under this subclause (ii).

**4.5 Non-Public Information.** Except with respect to the material terms and conditions of the transactions contemplated by this Agreement, which shall be disclosed pursuant to Section 4.4 of this Agreement, the Company covenants and agrees that neither it, nor any other Person acting on its behalf will provide any Purchaser or its agents or counsel with any information that constitutes, or the Company reasonably believes constitutes, material non-public information, unless prior thereto such Purchaser shall have consented in writing to the receipt of such information and agreed in writing with the Company to keep such information confidential beyond the time of the Cleansing Disclosure. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company. To the extent that the Company delivers any material, non-public information to a Purchaser without such Purchaser's consent, the Company hereby covenants and agrees that such Purchaser shall not have any duty of confidentiality to the Company or any of its officers, directors, agents, employees or Affiliates, or a duty to the Company or any of its officers, directors, agents, employees or Affiliates not to trade on the basis of such material, non-public information, provided that the Purchaser shall remain subject to applicable law. To the extent that any notice provided pursuant to any Transaction Document constitutes, or contains, material, non-public information regarding the Company, the Company shall simultaneously file such notice with the SEC pursuant to a Current Report on Form 8-K. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company.

**4.6 Sales by Purchasers; Purchases Prior to the Closing.** Each Purchaser will sell any Shares and, if applicable, any Warrant Shares held by it in compliance with applicable prospectus delivery requirements, if any, or otherwise in compliance with the requirements for an exemption from registration under the Securities Act and the rules and regulations promulgated thereunder. No Purchaser will make any sale, transfer or other disposition of the Securities or, if applicable, Warrant Shares in violation of federal or state securities laws.

**4.7 Form D and Blue Sky.** The Company agrees to timely file a Form D with respect to the Shares as required under Regulation D. The Company shall, on or before the Closing Date, take such action as the Company shall reasonably determine is necessary in order to obtain an exemption for, or to qualify the Shares for, sale to the Purchasers at the Closing occurring on the Closing Date pursuant to this Agreement under applicable securities or "*Blue Sky*" laws of the states of the United States, and shall provide promptly upon the request of any Purchasers evidence of any such action so taken. The Company shall make all filings and reports relating to the offer and sale of the Shares required under applicable securities or Blue Sky laws of the states of the United States following the Closing Date.

**4.8 Short Sales and Confidentiality After the Date Hereof.** Each Purchaser shall not, and shall cause its Affiliates not to, engage, directly or indirectly, in any transactions in the Company's securities (including, without limitation, any Short Sales involving the Company's securities) during the period from the date hereof until such time as the transactions contemplated by this Agreement are first publicly disclosed as required by and described in Section 4.4 of this Agreement. Each Purchaser, severally and not jointly with the other Purchasers, covenants that until such time as the transactions contemplated by this Agreement are publicly disclosed by the Company as described in Section 4.4 of this Agreement, such Purchaser will maintain the confidentiality of the existence and terms of this transaction and the information included in the Transaction Documents. Notwithstanding the foregoing, in the event that a Purchaser is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser's assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser's assets, the representation set forth above shall apply only with respect to the portion of assets managed by the portfolio manager that have knowledge about the financing transaction contemplated by this Agreement.

**4.9Reservation of Common Stock.** The Company shall reserve and keep available at all times during which the Warrants remain exercisable a sufficient number of shares of Common Stock for the purpose of enabling the Company to issue the Warrant Shares pursuant to the Warrants.

**4.10Listing of Common Stock.** The Company hereby agrees to use best efforts to maintain the listing of the Common Stock on Nasdaq, and in advance of the Closing, the Company shall apply to list all of the Shares and Warrant Shares on Nasdaq and promptly secure the listing of all of the Shares and Warrant Shares on Nasdaq. The Company further agrees, if the Company applies to have the Common Stock traded on any other Trading Market, it will then include in such application all of the Shares and Warrant Shares, and will take such other action as is necessary to cause all of the Shares and Warrant Shares to be listed or quoted on such other Trading Market as promptly as possible. The Company will then take all action reasonably necessary to continue the listing and trading of its Common Stock on such Trading Market and will comply in all respects with the Company's reporting, filing and other obligations under the bylaws or rules of such Trading Market. The Company agrees to maintain the eligibility of the Common Stock for electronic transfer through the Depository Trust Company or another established clearing corporation, including, without limitation, by timely payment of fees to the Depository Trust Company or such other established clearing corporation in connection with such electronic transfer. Nothing in this Section 4.10 shall be construed so as to limit the Company's ability to engage in a strategic or financial material transaction approved by the Board of Directors, the result of which is that the Company is taken private or acquired by another company and its shares are no longer listed on any Trading Market.

## ARTICLE 5

### CONDITIONS TO CLOSING

**5.1Conditions to Obligations of the Company.** The Company's obligation to complete the purchase and sale of the Securities to each Purchaser at the Closing is subject to the waiver by the Company or fulfillment as of the Closing Date of the following conditions:

(a) **Receipt of Funds.** The Company shall have received immediately available funds in the full amount of the Shares Subscription Amount and the Warrants Subscription Amount for the Securities being purchased in the Closing hereunder as set forth opposite such Purchaser's name on **Exhibit A** hereto.

(b) **Representations and Warranties.** The representations and warranties made by each Purchaser in Article 3 shall be true and correct in all material respects (or, to the extent representations or warranties are qualified by materiality, in all respects) as of the Closing Date (unless made as of a specified date therein, which such representations and warranties shall be true and correct in all material respects (or, to the extent such representations and warranties are qualified by materiality, in all respects) as of such date).

(c) **Covenants.** All covenants, agreements and conditions contained in this Agreement to be performed by the Purchasers on or prior to the Closing Date shall have been performed or complied with in all material respects.

(d) **Blue Sky.** The Company shall have obtained all necessary blue sky law permits and qualifications, or secured exemptions therefrom, required by any state for the offer and sale of the Securities.

(e) **No Governmental Prohibition.** The sale of the Securities by the Company shall not be prohibited by any law or governmental order or regulation.

**5.2Conditions to Purchasers' Obligations.** Each Purchaser's obligation to complete the purchase and sale of the Securities is subject to the waiver by such Purchaser or fulfillment as of the Closing Date of the following conditions:



**(a) Representations and Warranties.** The representations and warranties made by the Company in Article 2 shall be true and correct in all material respects (or, to the extent representations or warranties are qualified by materiality or Material Adverse Effect, in all respects) as of the Closing Date (unless made as of a specified date therein, which such representations and warranties shall be true and correct in all material respects (or, to the extent such representations and warranties are qualified by materiality, in all respects) as of such date).

**(b) Covenants.** All covenants, agreements and conditions contained in this Agreement to be performed by the Company on or prior to the Closing Date shall have been performed or complied with in all material respects.

**(c) Blue Sky.** The Company shall have obtained all necessary blue sky law permits and qualifications, or secured exemptions therefrom, required by any state or foreign or other jurisdiction for the offer and sale of the Securities.

**(d) Nasdaq Qualification.**

**(i)** The Common Stock shall be listed on the Nasdaq and shall not have been suspended, as of the Closing Date, by the SEC or Nasdaq from trading thereon nor shall suspension by the SEC or Nasdaq have been threatened, as of the Closing Date, either (i) by the SEC or Nasdaq or (ii) by falling below the minimum listing maintenance requirements of Nasdaq (with a reasonable prospect of delisting occurring after giving effect to all applicable notice, appeal, compliance and hearing periods).

**(ii)** The Shares and the Warrant Shares to be issued shall be duly authorized for listing by Nasdaq, subject to official notice of issuance, to the extent required by the rules of Nasdaq.

**(e) No Governmental Prohibition.** The sale of the Securities by the Company shall not be prohibited by any law or governmental order or regulation.

**(f) No Material Adverse Effect.** There shall not have occurred any Material Adverse Effect, or any development that could reasonably be expected to result in a Material Adverse Effect, since the date hereof.

**(g) Transfer Agent Instructions.** The Company shall have delivered to its Transfer Agent irrevocable instructions to issue to such Purchaser or in such nominee name(s) as designated by such Purchaser in writing such number of Shares set forth opposite such Purchaser's name on Exhibit A hereto and the Warrants to purchase the Warrant Shares set forth opposite such Purchaser's name on Exhibit A hereto, and a copy of such instructions shall have been delivered to Purchaser.

**(h) Absence of Litigation.** No writ, order, stay, stipulation, determination, judgment or injunction (preliminary or permanent), award or decree of or by any court, or judge, justice or magistrate, including any bankruptcy court or judge, or any order, executive order, decree, statute, rule or regulation of or by any governmental authority, shall have been issued, and no action or proceeding shall have been instituted by any governmental authority, enjoining, preventing, or restraining, or seeking to enjoin, prevent or restrain, or which has effect of making the consummation of the transactions contemplated hereby illegal or otherwise prohibiting any of the transactions contemplated hereby, and no action or proceeding seeking to impose such injunction, prohibition or restrain shall have been, to the Company's knowledge, threatened against the Company.

**(i) Authorizations and Consents.** The Company shall have obtained any and all authorizations, consents, permits, approvals, registrations and waivers necessary for the consummation of the purchase and sale of the Securities and the consummation of the other transactions contemplated by this Agreement, all of which shall be in full force and effect.

(j) **No Stop Orders.** No stop order shall have been imposed by Nasdaq, the SEC or any other governmental or regulatory body with respect to public trading in the Common Stock.

(k) **No Other Agreements.** The Company shall not have entered into any securities purchase agreement, subscription agreement, side letter or similar agreement or understanding with any other Purchaser or other person in connection with the transactions contemplated herein, and no Purchaser shall have received terms in respect of its purchase of any of the Securities that are more favorable than those of any other Purchaser.

(l) **Legal Opinion.** The Company shall have caused its counsel to issue a legal opinion to the Purchasers in form and substance reasonably acceptable thereto.

## ARTICLE 6

### REGISTRATION RIGHTS

6.1 As soon as reasonably practicable, but in no event later than 30 days after the Closing Date (the “**Filing Deadline**”), the Company shall file a registration statement covering the resale of the Registrable Securities with the SEC for an offering to be made on a continuous basis pursuant to Rule 415, or if Rule 415 is not available for offers and sales of the Registrable Securities, by such other means of distribution of Registrable Securities as the Holders of a majority of such Registrable Securities may reasonably specify (the “**Initial Registration Statement**”). The Initial Registration Statement shall be on Form S-3 (except if the Company is ineligible to register for resale the Registrable Securities on Form S-3, in which case such registration shall be on Form S-1) and have the Initial Registration Statement declared effective as promptly as possible after the filing thereof, but in any event prior to the date which is the earlier of (i) five days after the receipt of a notification of no-review in the event of no review by the SEC or (ii) 75 days after the Filing Deadline (or 90 days in the event the SEC reviews and has written comments) (the “**Effectiveness Deadline**”). For purposes of clarification, any failure by the Company to file the Initial Registration Statement by the Filing Deadline or to have such Registration Statement declared effective by the Effectiveness Deadline, shall not otherwise relieve the Company of its obligations to file or have the Initial Registration Statement declared effective as set forth above in this Section 6.1. In the event the SEC informs the Company that all of the Registrable Securities cannot, as a result of the application of Rule 415, be registered for resale as a secondary offering on a single registration statement, the Company agrees to promptly inform each of the Holders thereof and (i) use its best efforts to file amendments to the Initial Registration Statement as required by the SEC and/or (ii) withdraw the Initial Registration Statement and file a new registration statement (a “**New Registration Statement**”), in either case covering the maximum number of Registrable Securities permitted to be registered by the SEC, on Form S-3 or, if the Company is ineligible to register for resale the Registrable Securities on Form S-3, Form S-1; *provided, however*, that prior to filing such amendment or New Registration Statement, the Company shall be obligated to use its best efforts to advocate with the SEC for the registration of all of the Registrable Securities on the Initial Registration Statement. In the event the Company amends the Initial Registration Statement or files a New Registration Statement, as the case may be, under clauses (i) or (ii) above, the Company will use its best efforts to file with the SEC, within 30 days following the date allowed by the SEC, one or more registration statements on Form S-3 or, if the Company is ineligible to register for resale the Registrable Securities on Form S-3, Form S-1, to register for resale those Registrable Securities that were not registered for resale on the Initial Registration Statement, as amended, or the New Registration Statement (the “**Remainder Registration Statements**”). If the SEC limits the number of Registrable Securities permitted to be registered on a particular Registration Statement (and notwithstanding that the Company used diligent efforts to advocate with the SEC for the registration of all or a greater number of Registrable Securities), any required cutback of Registrable Securities (such Registrable Securities so cut back, the “**Cut Back Securities**”) shall be applied first to any securities included in the Initial Registration Statement or Remainder Registration Statement by any Person other than a Purchaser (or a Purchaser’s transferee), and then to the Purchasers pro rata in accordance with the number of such Registrable Securities sought to be included in such Registration Statement by reference to the amount of Registrable Securities set forth opposite such Purchaser’s name on **Exhibit A** (and in the case of a subsequent

transfer, the initial Purchaser's transferee) relative to the aggregate amount of all Registrable Securities. In no event shall any Purchaser be identified as a statutory underwriter in the Registration Statement unless in response to a comment or request from the Staff or another regulatory agency; provided, that if the SEC requests that a Purchaser be identified as a statutory underwriter in the Registration Statement, such Purchaser will have an opportunity to withdraw from the Registration Statement.

**6.2**All Registration Expenses incurred in connection with any registration, qualification, exemption or compliance pursuant to Section 6.1 shall be borne by the Company. All Selling Expenses relating to the sale of securities registered by or on behalf of a Holder shall be borne by such Holder.

**6.3**The Company further agrees that, in the event that (i) the Initial Registration Statement has not been filed by the Filing Deadline, (ii) the Initial Registration Statement or the New Registration Statement, as applicable, has not been declared effective by the SEC by the Effectiveness Deadline, or (iii) after such Registration Statement is declared effective by the SEC, it is suspended by the Company or ceases to remain continuously effective as to all Registrable Securities for which it is required to be effective, other than, in each case, within the time period(s) permitted by Section 6.7(b) (each such event referred to in clauses (i), (ii) and (iii), (a "**Registration Default**")), for more than 20 consecutive days or more than 40 days in any period of 365 days during which the Registration Default remains uncured, the Company shall pay to each Purchaser 1.0% of the aggregate of such Purchaser's Shares Subscription Amount and Warrants Subscription Amount (the "**Aggregate Purchase Price**") as set forth on **Exhibit A** hereto of such Purchaser's Registrable Securities for each 20-day period (a "**Penalty Period**") (provided the payment amount shall increase by 1.0% of such Purchaser's Aggregate Purchase Price as set forth on **Exhibit A** hereto for each subsequent 20-day period following the initial 20-day period), or pro rata for any portion thereof, during which the Registration Default remains uncured; *provided, however*, that if a Purchaser fails to provide the Company with any information that is required to be provided in such Registration Statement with respect to such Purchaser as set forth herein, then the commencement of the Penalty Period described above shall be extended until two Business Days following the date of receipt by the Company of such required information; and provided, further, that in no event shall the Company be required hereunder to pay to any Purchaser pursuant to this Agreement more than 3.0% of such Purchaser's Aggregate Purchase Price of such Purchaser's Registrable Securities in any Penalty Period and in no event shall the Company be required hereunder to pay to any Purchaser pursuant to this Agreement an aggregate amount that exceeds 10.0% of the Aggregate Purchase Price paid by such Purchaser for such Purchaser's Securities. The Company shall deliver said cash payment to the Purchaser by the fifth Business Day after the end of such Penalty Period. Notwithstanding any other provision of this Section 6.3, no Registration Default as to the Cut Back Securities shall be deemed to have occurred until the date that is 30 days following the date on which the SEC permits the Cut Back Securities to be registered, and the payment of any penalty pursuant to this Section 6.3 shall be calculated to apply only to the percentage of Registrable Securities which are permitted by the SEC to be registered within the timeframes provided for in this Agreement.

**6.4**In the case of the registration, qualification, exemption or compliance effected by the Company pursuant to this Agreement, the Company shall, upon reasonable request, inform each Holder as to the status of such registration, qualification, exemption and compliance. At its expense the Company shall:

(a) except for such times as the Company is permitted hereunder to suspend the use of the prospectus forming part of a Registration Statement, use its best efforts to keep such registration, and any qualification, exemption or compliance under state securities laws which the Company determines to obtain, continuously effective with respect to a Holder, and to keep the applicable Registration Statement free of any material misstatements or omissions, until the earlier of the following: (i) the third anniversary of the Closing Date or (ii) the date all Shares and Warrant Shares held by or issuable to such Holder may be sold under Rule 144 without being subject to any volume, manner of sale or publicly available information requirements. The period of time during which the Company is required hereunder to keep a Registration Statement effective is referred to herein as the "**Registration Period**."

**(b)** advise the Holders as soon as practicable, but in no event later than two Business Days:

**(i)** when a Registration Statement or any amendment thereto has been filed with the SEC and when such Registration Statement or any post-effective amendment thereto has become effective;

**(ii)** of any request by the SEC for amendments or supplements to any Registration Statement or the prospectus included therein or for additional information;

**(iii)** of the issuance by the SEC of any stop order suspending the effectiveness of any Registration Statement or the initiation of any proceedings for such purpose;

**(iv)** of the receipt by the Company of any notification with respect to the suspension of the qualification of the Registrable Securities included therein for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; and

**(v)** of the occurrence of any event that requires the making of any changes in any Registration Statement or prospectus so that, as of such date, the statements therein are not misleading and do not omit to state a material fact required to be stated therein or necessary to make the statements therein (in the case of a prospectus, in the light of the circumstances under which they were made) not misleading;

**(c)** use its commercially reasonable efforts to obtain the withdrawal of any order suspending the effectiveness of any Registration Statement as soon as reasonably practicable;

**(d)** if a Holder so requests in writing, promptly furnish to each such Holder, without charge, at least one copy of each Registration Statement and each post-effective amendment thereto, including financial statements and schedules, and, if explicitly requested, all exhibits in the form filed with the SEC;

**(e)** during the Registration Period, promptly deliver to each such Holder, without charge, as many copies of each prospectus included in a Registration Statement and any amendment or supplement thereto as such Holder may reasonably request in writing; and the Company consents to the use, consistent with the provisions hereof, of the prospectus or any amendment or supplement thereto by each of the selling Holders of Registrable Securities in connection with the offering and sale of the Registrable Securities covered by a prospectus or any amendment or supplement thereto;

**(f)** during the Registration Period, if a Holder so requests in writing, deliver to each Holder, without charge, (i) one copy of the following documents, other than those documents available via the SEC's Electronic Data Gathering, Analysis, and Retrieval system (or successor thereto): (A) its annual report to its stockholders, if any (which annual report shall contain financial statements audited in accordance with generally accepted accounting principles in the United States by a firm of certified public accountants of recognized standing), (B) if not included in substance in its annual report to stockholders, its annual report on Form 10-K (or similar form), (C) its definitive proxy statement with respect to its annual meeting of stockholders, (D) each of its quarterly reports to its stockholders, and, if not included in substance in its quarterly reports to stockholders, its quarterly report on Form 10-Q (or similar form), and (E) a copy of each full Registration Statement (the foregoing, in each case, excluding exhibits), without prejudice to such Holder's right to receive a copy of such Registration Statement pursuant to Section 6.4(d); and (ii) if explicitly requested, all exhibits excluded by the parenthetical to the immediately preceding clause (E);

**(g)** prior to any public offering of Registrable Securities pursuant to any Registration Statement, promptly take such actions as may be necessary to register or qualify or obtain an exemption for offer and sale under the securities or blue sky laws of such United States jurisdictions as any such Holders reasonably request in writing, provided that the Company shall not for any such purpose be required to qualify generally to transact business as a

foreign corporation in any jurisdiction where it is not so qualified or to consent to general service of process in any such jurisdiction, and do any and all other acts or things reasonably necessary or advisable to enable the offer and sale in such jurisdictions of the Registrable Securities covered by any such Registration Statement;

**(h)** upon the occurrence of any event contemplated by Section 6.4(b)(v) above, except for such times as the Company is permitted hereunder to suspend the use of a prospectus forming part of a Registration Statement, use its best efforts to as soon as reasonably practicable prepare a post-effective amendment to such Registration Statement or a supplement to the related prospectus, or file any other required document so that, as thereafter delivered to purchasers of the Registrable Securities included therein, such prospectus will not include any untrue statement of a material fact or omit to state any material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading;

**(i)** otherwise use its commercially reasonable efforts to comply in all material respects with all applicable rules and regulations of the SEC which could affect the sale of the Registrable Securities;

**(j)** use its commercially reasonable efforts to cause all Registrable Securities to be listed on each securities exchange or market, if any, on which equity securities issued by the Company have been listed;

**(k)** use its commercially reasonable efforts to take all other steps necessary to effect the registration of the Registrable Securities contemplated hereby and to enable the Holders to sell Registrable Securities under Rule 144;

**(l)** provide to each Purchaser and its representatives, if requested, the opportunity to conduct a reasonable inquiry of the Company's financial and other records during normal business hours and make available its officers, directors and employees for questions regarding information which such Purchaser may reasonably request in order to fulfill any due diligence obligation on its part;

**(m)** permit a single counsel for the Purchasers to review any Registration Statement and all amendments and supplements thereto (other than supplements to a Registration Statement on Form S-1 solely for the purpose of incorporating other filings with the SEC into such Registration Statement and other than an amendment to a Registration Statement on Form S-1 on Form S-3 for the purpose of converting such Registration Statement into a Registration Statement on Form S-3), within five Business Days prior to the filing thereof with the SEC; *provided* that each Purchaser shall have an opportunity to review and comment on the Plan of Distribution, Use of Proceeds, Selling Stockholders sections (or similarly titled sections), prospectus summary and any other disclosures in which it is named at least five Business Days prior to filing; and

**(n)** permit each Purchaser to review the information contemplated to be included in the Selling Stockholders section (or similarly titled Section) of any Registration Statement relating to such Purchaser within five Business Days prior to the filing thereof with the SEC;

*provided* that, in the case of clauses (l), (m) and (n) above, the Company shall not be required (A) to delay the filing of any Registration Statement or any amendment or supplement thereto as a result of any ongoing diligence inquiry by or on behalf of a Holder or to incorporate any comments to any Registration Statement or any amendment or supplement thereto by or on behalf of a Holder if such inquiry or comments would require a delay in the filing of such Registration Statement, amendment or supplement, as the case may be, or (B) to provide, and shall not provide, any Purchaser or its representatives with material, non-public information unless such Purchaser agrees to receive such information and enters into a written confidentiality agreement with the Company in a form reasonably acceptable to the Company; and *provided further*, that, in the case of clause (m) above, the Company shall pay the reasonable fees and expenses of such single counsel for the Purchasers in an amount not to exceed, in the aggregate, \$30,000.

**6.5**The Holders shall have no right to take any action to restrain, enjoin or otherwise delay any registration pursuant to Section 6.1 hereof as a result of any controversy that may arise with respect to the interpretation or implementation of this Agreement.

**6.6(a)** To the extent permitted by law, the Company shall indemnify, defend and hold harmless each Purchaser or Holder its Affiliates and Attribution Parties, any other Person controlling such Purchaser or Holder within the meaning of Section 15 of the Securities Act, and each of their respective directors, managers, portfolio managers, investment advisors, officers, principals, partners, members, equityholders (regardless of whether such interest are held directly or indirectly), trustees, controlling persons, predecessors, successors and assigns, subsidiaries, employees, agents, advisors, attorneys and representatives (each a “**Company Indemnified Party**”), with respect to which any registration that has been effected pursuant to this Agreement, from and against all claims, losses, damages, expenses (including fees and disbursements of external counsel) and liabilities (or action, suit, proceeding, inquiry or investigation in respect thereof), and shall reimburse each Company Indemnified Party upon demand for reasonable and documented fees and expenses of counsel and other expenses incurred by it in connection with investigating, preparing to defend or defending, or providing evidence in or preparing to serve or serving as a witness with respect thereto, including any of the foregoing incurred in settlement of any litigation, commenced or threatened (subject to Section 6.6(c) below), arising out of or based on (a) this Agreement (including as a result of any breach or inaccuracy of any representation, warranty or covenant of the Company herein) or (b) any untrue statement (or alleged untrue statement) of a material fact contained in any Registration Statement, prospectus, any amendment thereof or supplement thereto, or other document incident to any such registration, qualification or compliance or based on any omission (or alleged omission) to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in light of the circumstances in which they were made, or any violation by the Company of any rule or regulation promulgated under the Securities Act applicable to the Company and relating to any action or inaction required of the Company in connection with any such registration, qualification or compliance, and will reimburse each Holder and each Person controlling such Holder, for reasonable legal and other out-of-pocket expenses reasonably incurred in connection with investigating or defending any such claim, loss, damage, liability or action as incurred; provided that the Company will not be liable in any such case to the extent that any untrue statement or omission or allegation thereof is made in reliance upon and in conformity with written information furnished to the Company by or on behalf of such Holder for use in preparation of any Registration Statement, prospectus, amendment or supplement; *provided further*, that the Company will not be liable in any such case where the claim, loss, damage or liability arises out of or is related to the failure of such Holder to comply with the covenants and agreements contained in this Agreement respecting sales of Registrable Securities. No Company Indemnified Party shall have any liability (whether direct or indirect, in contract, tort or otherwise) to the Company, for or in connection with the transactions contemplated hereby, except to the extent such liability results from such Company Indemnified Party’s bad faith, actual fraud, gross negligence or willful misconduct.

**(b)** Each Holder will severally, and not jointly, indemnify the Company, each of its directors and officers, and each Person who controls the Company within the meaning of Section 15 of the Securities Act, against all claims, losses, damages and liabilities (or actions in respect thereof), including any of the foregoing incurred in settlement of any litigation, commenced or threatened (subject to Section 6.6(c) below), arising out of or based on any untrue statement (or alleged untrue statement) of a material fact contained in any Registration Statement, prospectus, or any amendment or supplement thereof, incident to any such registration, or based on any omission (or alleged omission) to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in light of the circumstances in which they were made, and will reimburse the Company, such directors and officers, and each Person controlling the Company for reasonable legal and any other expenses reasonably incurred in connection with investigating or defending any such claim, loss, damage, liability or action as incurred, in each case to the extent, but only to the extent, that such untrue statement or omission or allegation thereof is contained in written information furnished to the Company by or on behalf of the Holder expressly for inclusion in any Registration Statement, prospectus, amendment or supplement. Notwithstanding the foregoing, a Holder’s aggregate liability pursuant to this subsection (b) and subsection (d) shall be limited to the net amount (net

of all expenses paid by such Holder in connection with any claim relating to this Section 6.6 and the amount of any damages such Holder has otherwise been required to pay by reason of such untrue statement or omission) actually received by the Holder from the sale of the Registrable Securities included in the Registration Statement giving rise to such indemnification obligations.

(c) Each party entitled to indemnification under this Section 6.6 (the “**Indemnified Party**”) shall give notice to the party required to provide indemnification (the “**Indemnifying Party**”) promptly after such Indemnified Party has actual knowledge of any claim as to which indemnity may be sought, and shall permit the Indemnifying Party (at its expense) to assume the defense of any such claim or any litigation resulting therefrom, provided that counsel for the Indemnifying Party, who shall conduct the defense of such claim or litigation, shall be approved by the Indemnified Party (whose approval shall not unreasonably be withheld), and the Indemnified Party may participate in such defense at such Indemnified Party’s expense, and provided further that the failure of any Indemnified Party to give notice as provided herein shall not relieve the Indemnifying Party of its obligations under this Agreement, unless such failure is materially prejudicial to the Indemnifying Party in defending such claim or litigation. An Indemnifying Party shall not be liable for any settlement of an action or claim effected without its written consent (which consent will not be unreasonably withheld). No Indemnifying Party, in its defense of any such claim or litigation, shall, except with the consent of each Indemnified Party, consent to entry of any judgment or enter into any settlement unless such judgment or settlement (a) includes as an explicit and unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party of a release from all liability in respect to such claim or litigation, (b) does not include a statement as to or an admission of fault, culpability, or a failure to act by or on behalf of such Indemnified Party and (c) imposes no liability or obligation on such Indemnified Party. No Company Indemnified Party shall be liable for any damages arising from the use by unauthorized persons of any information made available to the Company Indemnified Parties by or on behalf of the Company or its representatives through electronic, telecommunications or other information transmission systems that is intercepted by such persons.

(d) If the indemnification provided for in this Section 6.6 is held by a court of competent jurisdiction to be unavailable to an Indemnified Party with respect to any loss, liability, claim, damage or expense referred to therein, then the Indemnifying Party, in lieu of indemnifying such Indemnified Party thereunder, shall contribute to the amount paid or payable by such Indemnified Party as a result of such loss, liability, claim, damage or expense in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party on the one hand and of the Indemnified Party on the other in connection with the actions, statements or omissions which resulted in such loss, liability, claim, damage or expense as well as 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 alleged untrue statement of a material fact or the omission to state 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.

**6.7(a)** Each Holder agrees that, upon receipt of any notice from the Company of the happening of any event described in Section 6.7(b), below, requiring the preparation of a supplement or amendment to a prospectus relating to Registrable Securities so that, as thereafter delivered to the Holders, such prospectus shall not contain an untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading, each Holder will forthwith discontinue disposition of Registrable Securities pursuant to a Registration Statement and prospectus contemplated by Section 6.1 until its receipt of copies of the supplemented or amended prospectus from the Company and, if so directed by the Company, each Holder shall deliver to the Company all copies, other than permanent file copies then in such Holder’s possession, of the prospectus covering such Registrable Securities current at the time of receipt of such notice.

(b) Each Holder shall suspend, upon request of the Company, any disposition of Registrable Securities pursuant to any Registration Statement and prospectus contemplated by Section 6.1 during no more than two periods of no more than 30 calendar days each during any 12-month period to the extent that the Board of Directors of the

Company determines in good faith that the sale of Registrable Securities under any such Registration Statement would be reasonably likely to cause a violation of the Securities Act or Exchange Act.

(c) As a condition to the inclusion of its Registrable Securities in a Registration Statement, each Holder shall furnish to the Company such information regarding such Holder and the distribution proposed by such Holder as the Company may reasonably request in writing, including completing a Registration Statement Questionnaire in a customary form provided by the Company, or as shall be required in connection with any registration referred to in this Article 6.

(d) Each Holder hereby covenants with the Company that it shall comply with the prospectus delivery requirements, if any, under the Securities Act as applicable to it or an exemption therefrom in connection with sales of Registrable Securities pursuant to a Registration Statement filed by the Company pursuant to this Agreement.

(e) At the end of the Registration Period the Holders shall discontinue sales of any Shares or Warrant Shares pursuant to any Registration Statement upon receipt of notice from the Company of its intention to remove from registration the Shares or Warrant Shares covered by any such Registration Statement which remain unsold, and such Holders shall notify the Company of the number of Shares or Warrant Shares registered which remain unsold immediately upon receipt of such notice from the Company.

**6.8**With a view to making available to the Holders the benefits of certain rules and regulations of the SEC which at any time permit the sale of the Registrable Securities to the public without registration, so long as the Holders still own Registrable Securities, the Company shall use its best efforts to:

(a) make and keep public information available, as those terms are understood and defined in Rule 144 under the Securities Act, at all times;

(b) file with the SEC in a timely manner all reports and other documents required of the Company under the Exchange Act; and

(c) so long as a Holder owns any Registrable Securities, furnish to such Holder, upon any reasonable request, a written statement by the Company as to its compliance with Rule 144 under the Securities Act, and of the Exchange Act, a copy of the most recent annual or quarterly report of the Company, and such other reports and documents of the Company as such Holder may reasonably request in availing itself of any rule or regulation of the SEC allowing a Holder to sell any such securities without registration.

**6.9**The rights to cause the Company to register Registrable Securities granted to the Holders by the Company under Section 6.1 may be assigned by a Holder in connection with a transfer by such Holder of all or a portion of its Registrable Securities, *provided, however*, that (i) such transfer may otherwise be effected in accordance with applicable securities laws; (ii) such Holder gives written notice to the Company promptly following such transfer; and (iii) such transferee agrees to comply with the terms and provisions of this Agreement, and such transfer is otherwise in compliance with this Agreement. Except as specifically permitted by this Section 6.9, the rights of a Holder with respect to Registrable Securities as set out herein shall not be transferable to any other Person.

**6.10**From the date hereof until 90 days following the time that Registration Statement(s) covering the resale of all Registrable Securities have been declared effective by the SEC, the Company shall not (i) issue, enter into any agreement to issue or announce the issuance or proposed issuance of any shares of Common Stock or Common Stock Equivalents or (ii) file with the SEC a registration statement under the Securities Act of any of its equity securities other than a registration statement required to be filed pursuant to this Agreement, a registration statement on Form S-8 or, in connection with an acquisition, a registration statement on Form S-4; *provided, however*, that the foregoing restrictions in this Section 6.10 shall terminate upon such time as all of the Registrable Securities (a) have been publicly sold by the Holders or (b) may be sold under Rule 144 during such 90-day period.



Notwithstanding the foregoing, the restrictions set forth in clause (i) of this Section 6.10 shall not apply with respect to any Exempt Issuance. As used herein, “**Exempt Issuance**” means the issuance of (a) options, stock, restricted stock units or other equity awards to employees, consultants and directors of the Company pursuant to equity benefit plans of the Company or as inducement awards pursuant to Nasdaq Listing Rule 5635(c)(4), (b) the securities exercisable or exchangeable for or convertible into shares of Common Stock issued and outstanding on the date of this Agreement, provided that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities (other than in connection with stock splits or combinations) or to extend the term of such securities, (c) the Company’s securities pursuant to a research and development, license or commercialization agreement with a third party, including the Company’s current or prospective vendors, customers, suppliers, strategic partners, research and development collaborators, or (d) the Company’s securities pursuant to any merger, acquisition, business combination, joint venture, or similar transaction.

## ARTICLE 7

### DEFINITIONS

7.1 “**Agreement**” has the meaning set forth in the preamble.

7.2 “**Affiliate**” means, with respect to any Person (as defined below), any other Person controlling, controlled by or under direct or indirect common control with such Person (for the purposes of this definition “**control**,” when used with respect to any specified Person, shall mean the power to direct the management and policies of such Person, directly or indirectly, whether through ownership of voting securities, by contract or otherwise; and the terms “**controlling**” and “**controlled**” shall have meanings correlative to the foregoing). Notwithstanding the foregoing, with respect to Novo Holdings A/S, in lieu of the foregoing definition, the term “Affiliate” shall mean Novo Holdings Equity Asia Pte. Ltd., Novo Ventures (US), Inc. and Novo Holdings Equity US Inc. (collectively with Novo, each a “Novo Entity” and collectively the “Novo Entities”), any partner, executive officer or director of the Novo Entities or any venture capital fund or other person now or hereafter existing formed for the purpose of making investments in other persons that is controlled by or under common control with a Novo Entity, and for the avoidance of doubt, shall not include any other affiliate of the Novo Entities.

7.3 “**Aggregate Purchase Price**” has the meaning set forth in Section 6.3.

7.4 “**Attribution Parties**” means, with respect to any Person, such Person’s Affiliates and any other Person whose beneficial ownership of Common Stock would be aggregated with such Person’s for purposes of Section 13(d) or Section 16 of the Exchange Act and the applicable regulations of the SEC, including any “group” of which such Person is a member.

7.5 “**Beneficial Ownership Limitation**” means the percentage set forth opposite such Purchaser’s name on **Exhibit A** hereto under the heading “Beneficial Ownership Limitation”.

7.6 “**Business Day**” means any day other than Saturday, Sunday or other day on which commercial banks in the City of New York are authorized or required by law to remain closed.

7.7 “**Closing**” has the meaning set forth in Section 1.1(a).

7.8 “**Closing Date**” has the meaning set forth in Section 1.1(c).

7.9 “**Common Stock**” has the meaning set forth in Recital B to this Agreement.

**7.10“Common Stock Equivalents”** means any options, warrants or other securities or rights convertible into or exercisable or exchangeable for, whether directly or following conversion into or exercise or exchange for other options, warrants or other securities or rights, shares of Common Stock, or any swap, hedge or similar agreement or arrangement that transfers in whole or in part, the economic risk of ownership of, or voting or other rights of, shares of Common Stock.

**7.11“Company Indemnified Party”** has the meaning set forth in Section 6.6(a).

**7.12“Computer Systems”** has the meaning set forth in Section 2.13.

**7.13“Cut Back Securities”** has the meaning set forth in Section 6.1.

**7.14“Effectiveness Deadline”** has the meaning set forth in Section 6.1.

**7.15“Engagement Letter”** means the Engagement Letter by and between the Company and the Placement Agent, dated January 23, 2023.

**7.16“Exchange Act”** means the Securities Exchange Act of 1934, as amended.

**7.17“FDA”** means the United States Food and Drug Administration.

**7.18“Filing Deadline”** has the meaning set forth in Section 6.1.

**7.19“Financial Statements”** means the financial statements of the Company included in the SEC Documents.

**7.20“Holders”** means any Person holding Registrable Securities or any Person to whom the rights under Article 6 have been transferred in accordance with Section 6.9 hereof.

**7.21“Indemnified Party”** has the meaning set forth in Section 6.6(c).

**7.22“Indemnifying Party”** has the meaning set forth in Section 6.6(c).

**7.23“Initial Registration Statement”** has the meaning set forth in Section 6.1.

**7.24“Market Price”** means \$3.07 per share.

**7.25“Material Adverse Effect”** means a change, event, development, occurrence, condition, state of fact or effect (each an “*Effect*” which, individually or in the aggregate with all other Effects that have occurred through the date of determination, has had or would reasonably be expected to have (a) a material adverse effect on the business, operations, prospects, assets and liabilities or condition (financial or otherwise) of the Company, taken as a whole, (b) has had or would reasonably be expected to have a material adverse effect on, or otherwise prevent or materially impair, the ability of the Company to perform its obligations pursuant to the transactions contemplated by this Agreement, or (c) has had or would reasonably be expected to have a material adverse effect on, or otherwise prevent or materially impair, the legality or enforceability of this Agreement or the Securities.

**7.26“Nasdaq”** means the Nasdaq Stock Market LLC.

**7.27“New Registration Statement”** has the meaning set forth in Section 6.1.

**7.28“Outside Date”** has the meaning set forth in Section 1.1(c).

**7.29“Penalty Period”** has the meaning set forth in Section 6.3.

**7.30“Person”** means any person, individual, corporation, limited liability company, partnership, trust or other nongovernmental entity or any governmental agency, court, authority or other body (whether foreign, federal, state, local or otherwise).

**7.31“Placement Agent”** means SVB Securities LLC.

**7.32“Pre-Funded Warrants”** has the meaning set forth in Recital B to this Agreement.

**7.33“Preferred Stock”** means the preferred stock, par value \$0.0001 per share, of the Company.

**7.34“Privacy Laws”** means all applicable laws and regulations concerning the privacy, security, or processing of personal information. Without limiting the foregoing, Privacy Laws include: the Federal Trade Commission Act, the California Consumer Privacy Act of 2018, as amended by the California Privacy Rights Act of 2020, the California Online Privacy Protection Act, the Health Insurance Portability and Accountability Act of 1996, as amended and supplemented by the Health Information Technology for Economic and Clinical Health Act of the American Recovery and Reinvestment Act of 2009, the General Data Protection Regulation (Regulation (EU) 2016/679), the UK General Data Protection Regulation and the Data Protection Act 2018, and all other similar international, federal, state, provincial, and local laws.

**7.35“Purchasers”** has the meaning set forth in the preamble.

**7.36**The terms “**register**,” “**registered**” and “**registration**” refer to the registration effected by preparing and filing a registration statement in compliance with the Securities Act, and the declaration or ordering of the effectiveness of such registration statement.

**7.37“Registrable Securities”** means the Shares and the Warrant Shares; *provided, however*, that Shares and Warrant Shares shall only be treated as Registrable Securities if and only for so long as they (A) have not been disposed of pursuant to a registration statement declared effective by the SEC, (B) have not been sold in a transaction exempt from the registration and prospectus delivery requirements of the Securities Act so that all transfer restrictions and restrictive legends with respect thereto are removed upon the consummation of such sale or (C) are held by a Holder or a permitted transferee pursuant to Section 6.9.

**7.38“Registration Default”** has the meaning set forth in Section 6.3.

**7.39“Registration Expenses”** means all expenses incurred by the Company in complying with Section 6.1 hereof, including, without limitation, all registration, qualification and filing fees, printing expenses, fees and expenses of counsel for the Company and blue sky fees and expenses (but excluding the fees of legal counsel for any Holder).

**7.40“Registration Statement”** means any one or more registration statements of the Company filed under the Securities Act that covers the resale of any of the Registrable Securities pursuant to the provisions of this Agreement (including without limitation any Initial Registration Statement, any New Registration Statement and any Remainder Registration Statements) and amendments and supplements to such Registration Statements, including post-effective amendments.

**7.41“Registration Period”** has the meaning set forth in Section 6.4(a).

**7.42“Remainder Registration Statement”** has the meaning set forth in Section 6.1.

**7.43“Rule 144”** means Rule 144 promulgated under the Securities Act, or any successor rule.

**7.44“Rule 415”** means Rule 415 promulgated under the Securities Act, or any successor rule.

7.45“*SEC*” means the United States Securities and Exchange Commission.

7.46“*SEC Documents*” has the meaning set forth in Section 2.1.

7.47“*Securities*” has the meaning set forth in Section 1.1(a).

7.48“*Securities Act*” means the Securities Act of 1933, as amended, and the rules and regulations thereunder, or any similar successor statute.

7.49“*Selling Expenses*” means all selling commissions applicable to the sale of Registrable Securities and all fees and expenses of legal counsel for any Holder.

7.50“*Shares*” has the meaning set forth in Recital B to this Agreement.

7.51“*Shares Subscription Amount*” has the meaning set forth in Section 1.1(a).

7.52“*Short Sales*” means all “short sales” as defined in Rule 200 of Regulation SHO of the Exchange Act, but shall be deemed to not include the location and/or reservation of borrowable shares of Common Stock.

7.53“*Staff*” means the staff of the SEC.

7.54“*Standard Warrants*” has the meaning set forth in Recital B to this Agreement.

7.55“*Trading Day*” means a day on which the principal Trading Market is open for trading.

7.56“*Trading Market*” means any of the following markets or exchanges on which the Common Stock is listed or quoted for trading on the date in question: the NYSE American, Nasdaq, or the New York Stock Exchange (or any successors to any of the foregoing).

7.57“*Transaction Documents*” means this Agreement, the Warrants, all exhibits and schedules thereto and hereto and any other documents or agreements executed in connection with the transactions contemplated hereunder.

7.58“*Transfer Agent*” has the meaning set forth in Section 1.1(b).

7.59“*Warrants*” has the meaning set forth in Section 1.1(a).

7.60“*Warrant Shares*” has the meaning set forth in Section 2.3.

7.61“*Warrants Subscription Amount*” has the meaning set forth in Section 1.1(b).

## ARTICLE 8

### GOVERNING LAW; MISCELLANEOUS

**8.1 Governing Law; Jurisdiction; Waiver of Jury Trial.** This Agreement will be governed by and interpreted in accordance with the laws of the State of New York. Each of the parties hereto irrevocably submits to the exclusive jurisdiction of the courts of the State of New York located in New York County and the United States District Court for the Southern District of New York for the purpose of any suits, action, proceeding or judgement relating to or arising out of this Agreement and the transactions contemplated hereby. Service of process in connection with any such suit, action or proceeding may be served on each party hereto anywhere in the world by the same methods as are specified for the giving of notices under this Agreement. Each of the parties hereto irrevocably consents to the jurisdiction of any such court in any such suit, action or proceeding to the laying of venue in such court. Each party

hereto irrevocably waives any objection to the laying of venue of any such suit, action or proceeding brought in such courts and irrevocably waives any claim that any such suit, action or proceeding brought in any such court has been brought in an inconvenient forum. To the extent that the Company has or hereafter may acquire any immunity (on the grounds of sovereignty or otherwise) from the jurisdiction of any court or from any legal process with respect to itself or its property, the Company irrevocably waives, to the fullest extent permitted by law, such immunity in respect of any suit, action or proceeding. TO THE EXTENT ALLOWABLE UNDER APPLICABLE LAW, 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 OR 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.

**8.2 Counterparts; Signatures by Facsimile.** This Agreement may be executed in counterparts, all of which are considered one and the same agreement and will become effective when counterparts have been signed by each party and delivered to the other parties. This Agreement may also be executed and delivered by facsimile signature, PDF or any electronic signature complying with the U.S. federal ESIGN Act of 2000 (e.g., [www.docuSign.com](http://www.docuSign.com)).

**8.3 Headings.** The headings of this Agreement are for convenience of reference only, are not part of this Agreement and do not affect its interpretation.

**8.4 Severability.** If any provision of this Agreement is invalid or unenforceable under any applicable statute or rule of law, then such provision will be deemed modified in order to conform with such statute or rule of law. Any provision hereof that may prove invalid or unenforceable under any law will not affect the validity or enforceability of any other provision hereof.

**8.5 Survival.** The representations and warranties contained herein shall survive the Closing and the delivery of the Securities.

**8.6 Entire Agreement; Amendments.** This Agreement (including all schedules and exhibits hereto) constitutes the entire agreement among the parties hereto with respect to the subject matter hereof and thereof. There are no restrictions, promises, warranties or undertakings, other than those set forth or referred to herein or therein. This Agreement supersedes all prior agreements and understandings among the parties hereto with respect to the subject matter hereof. No provision of this Agreement may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by the Company and Purchasers which purchased at least 50.1% in interest of the Securities based on the Aggregate Purchase Price hereunder (or, prior to the Closing, the Company and each Purchaser) or, in the case of a waiver, by the party against whom enforcement of any such waived provision is sought, provided that if any amendment, modification or waiver disproportionately and adversely impacts a Purchaser (or group of Purchasers), the consent of such disproportionately impacted Purchaser (or group of Purchasers) shall also be required. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right. Any proposed amendment or waiver that disproportionately, materially and adversely affects the rights and obligations of any Purchaser relative to the comparable rights and obligations of the other Purchasers shall require the prior

written consent of such adversely affected Purchaser. Any amendment or waiver effected in accordance with this Section 8.6 shall be binding upon each Purchaser and holder of Securities and the Company. No consideration (including any modification of any Transaction Document shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of the Transaction Documents unless the same consideration is also offered to all of the parties to the Transaction Documents. For clarification purposes, this provision constitutes a separate right granted to each Purchaser by the Company and negotiated separately by each Purchaser, and is intended for the Company to treat the Purchasers as a class and shall not in any way be construed as the Purchasers acting in concert or as a group with respect to the purchase, disposition or voting of Securities or otherwise.

**8.7Notices.** All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by email or facsimile if sent during normal business hours of the recipient, and if sent at a time other than during normal business hours of the recipient, then on the next business day (provided, with respect to notices sent by email so long as such sent email is kept on file by the sending party and the sending party does not receive an automatically generated message that such email could not be delivered to such recipient), (c) five days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one business day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. The addresses for such communications are:

If to the Company: Spruce Biosciences, Inc.  
611 Gateway Boulevard, Suite 740  
South San Francisco, CA 94080  
Attn: Samir Gharib

With a copy to: Cooley LLP  
55 Hudson Yards  
New York, NY 10001  
Attn: Jason Kent

If to a Purchaser: To the address set forth immediately below such Purchaser's name on the signature pages hereto. Each party will provide prompt written notice to the other parties of any change in its address.

**8.8Successors and Assigns.** This Agreement is binding upon and inures to the benefit of the parties and their successors and assigns. The Company will not assign this Agreement or any rights or obligations hereunder without the prior written consent of the Purchasers, and no Purchaser may assign this Agreement or any rights or obligations hereunder without the prior written consent of the Company, except as permitted in accordance with Section 6.9 hereof.

**8.9Third Party Beneficiaries.** This Agreement is intended for the benefit of the parties hereto, their respective permitted successors and assigns, and is not for the benefit of, nor may any provision hereof be enforced by, any other Person, except as set forth in Section 6.6(a) and Section 8.15 of this Agreement and this Section 8.9. The Placement Agent shall be the third party beneficiary of the representations and warranties of the Company in Article 2 and the representations and warranties of the Purchasers in Article 3.

**8.10Further Assurances.** Each party will do and perform, or cause to be done and performed, all such further acts and things, and will execute and deliver all other agreements, certificates, instruments and documents, as another party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

**8.11Remedies Cumulative.** The rights and remedies of the parties are cumulative and not alternative.

**8.12 Equitable Relief.** The Company acknowledges and agrees that the Company's failure to perform or discharge any of its obligations under this Agreement will result in irreparable damage to the Purchasers and that monetary damages, even if available, would provide inadequate relief to the Purchasers. The Company therefore agrees that the Purchasers are entitled to seek temporary and permanent injunctive relief, including specific performance, in any such case and waives any requirement for the posting of a bond. Each Purchaser also acknowledges and agrees that its failure to perform or discharge any of its obligations under this Agreement will result in irreparable damage to the Company and that monetary damages, even if available, would provide inadequate relief to the Company. Each Purchaser therefore agrees that the Company is entitled to seek temporary and permanent injunctive relief, including specific performance, in any such case and waives any requirement for the posting of a bond.

**8.13 Independent Nature of Purchasers' Obligations and Rights.** The obligations of each Purchaser under this Agreement are several and not joint with the obligations of any other Purchaser, and no Purchaser shall be responsible in any way for the performance of the obligations of any other Purchaser under this Agreement. Nothing contained herein and no action taken by any Purchaser pursuant hereto, shall be deemed to constitute the Purchasers as a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Purchasers are in any way acting in concert or as a group (within the meaning of Section 13(d)(3) of the Exchange Act), or are deemed affiliates with respect to such obligations or the transactions contemplated by this Agreement. Each Purchaser shall be entitled to independently protect and enforce its rights, including without limitation the rights arising out of this Agreement, and it shall not be necessary for any other Purchaser to be joined as an additional party in any proceeding for such purpose. It is expressly understood and agreed that each provision contained in this Agreement is between the Company and a Purchaser, solely, and not between the Company and the Purchasers collectively and not between and among the Purchasers. Notwithstanding anything to the contrary in the foregoing, each of the Purchasers has been advised, and is being advised by this Agreement, to consult with an attorney before executing this Agreement, and each Purchaser has consulted (or had an opportunity to consult) with counsel of such Purchaser's choice concerning the terms and conditions of this Agreement for a reasonable period of time prior to the execution hereof and thereof.

**8.14 No Waiver of Rights.** All waivers hereunder must be made in writing and executed by the party against whom enforcement of such waiver is sought, and the failure of any party at any time to require another party's performance of any obligation under this Agreement shall not affect the right subsequently to require performance of that obligation. Any waiver of any breach of any provision of this Agreement shall not be construed as a waiver of any continuing or succeeding breach of such provision or a waiver or modification of any other provision.

**8.15 Exculpation of the Placement Agent.** Each party hereto agrees for the express benefit of the Placement Agent and its Affiliates and representatives that:

(a) The Placement Agent and its Affiliates and representatives (i) have no duties or obligations other than those specifically set forth herein or in the Engagement Letter; (ii) shall not be liable for any improper payment made in accordance with the information provided by the Company; (iii) make no representation or warranty, and have no responsibilities as to the validity, accuracy, value or genuineness of any information, certificates or documentation delivered by or on behalf of the Company pursuant to this Agreement or in connection with any of the transactions contemplated hereby; and (iv) shall not be liable (A) for any action taken, suffered or omitted by any of them in good faith and reasonably believed to be authorized or within the discretion or rights or powers conferred upon them by this Agreement, or (B) for anything which any of them may do or refrain from doing in connection with this Agreement, except in each case for such Person's own gross negligence, willful misconduct or bad faith.

(b) The Placement Agent and its Affiliates and representatives shall be entitled to (1) rely on, and shall be protected in acting upon, any certificate, instrument, notice, letter or any other document or security delivered to any of them by or on behalf of the Company, and (2) be indemnified by the Company for acting as a Placement Agent hereunder pursuant to the indemnification provisions set forth in the Engagement Letter.

**8.16 Waiver of Conflicts.** Each Purchaser acknowledges that Cooley LLP, outside general counsel to the Company, may have in the past performed and may now or in the future represent one or more Purchasers or their affiliates in matters unrelated to the transactions contemplated by this Agreement (the “*Financing*”), including representation of such Purchasers or their affiliates in matters of a similar nature to the Financing. The applicable rules of professional conduct require that Cooley LLP inform the Purchasers hereunder of this representation and obtain their consent. Cooley LLP has served as outside general counsel to the Company and has negotiated the terms of the Financing solely on behalf of the Company. Each Purchaser hereby (a) acknowledges that they have had an opportunity to ask for and have obtained information relevant to such representation, including disclosure of the reasonably foreseeable adverse consequences of such representation; (b) acknowledges that with respect to the Financing, Cooley LLP has represented solely the Company, and not any Purchaser or any stockholder, director or employee of the Company or any Purchaser; and (c) gives its informed consent to Cooley LLP’s representation of the Company in the Financing.

**8.17 Payments.** All payments made by or on behalf of the Company or any of their Affiliates to any Purchaser or its assigns, successors or designees pursuant to this Agreement shall be without withholding, set-off, counterclaim or deduction of any kind.

[Signature Pages Follow]



**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**SPRUCE BIOSCIENCES, INC.**

By: /s/ Samir Gharib

Name: Samir Gharib

Title: President and Chief Financial Officer

**[Signature Page to Securities Purchase Agreement]**

---

IN WITNESS WHEREOF, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

PURCHASER: ARMISTICE CAPITAL MASTER FUND LTD.

By: /s/ Steven Boyd

Name: Steven Boyd

Title: CIO of Armistice Capital, LLC, its investment manager

**[Signature Page to Securities Purchase Agreement]**

---

IN WITNESS WHEREOF, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

PURCHASER: 5AM OPPORTUNITIES II, L.P.

By: /s/ Andrew Schwab

Name: Andrew Schwab

By: 5AM Opportunities II (GP), LLC

Title: Managing Member of General Partner

[Signature Page to Securities Purchase Agreement]

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER: ABINGWORTH BIOVENTURES VII LP**

By: its Manager, Abingworth LLP

By: /s/ John Heard

Name: John Heard

Title: General Counsel

**[Signature Page to Securities Purchase Agreement]**

---

IN WITNESS WHEREOF, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

PURCHASER: WVP EMERGING MANAGER ONSHORE FUND LLC – OPTIMIZED EQUITY SERIES

By: /s/ Orin Hirschman

Name: Orin Hirschman

Title: Managing Member, AIGH Capital Management LLC

**[Signature Page to Securities Purchase Agreement]**

---

IN WITNESS WHEREOF, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

PURCHASER: WVP EMERGING MANAGER ONSHORE FUND LLC – AIGH SERIES

By: /s/ Orin Hirschman

Name: Orin Hirschman

Title: Managing Member, AIGH Capital Management LLC

[Signature Page to Securities Purchase Agreement]

---

IN WITNESS WHEREOF, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

PURCHASER: AIGH INVESTMENT PARTNERS LP

By: /s/ Orin Hirschman

Name: Orin Hirschman

Title: Managing Member, AIGH Capital Management LLC

[Signature Page to Securities Purchase Agreement]

---

IN WITNESS WHEREOF, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

PURCHASER: ALYESKA MASTER FUND, L.P.

By: /s/ Jason Bragg

Name: Jason Bragg

Title: CFO Alyeska Investment Group, L.P.

[Signature Page to Securities Purchase Agreement]

---



**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** EMPERY ASSET MASTER, LTD

By: Empery Asset Management, LP, its Authorized Agent

By: /s/ Brett S. Director

Name: Brett S. Director

Title: General Counsel of Empery Asset Management, LP

**[Signature Page to Securities Purchase Agreement]**

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** EMPERY TAX EFFICIENT, LP

By: Empery Asset Management, LP, its Authorized Agent

By: /s/ Brett S. Director

Name: Brett S. Director

Title: General Counsel of Empery Asset Management, LP

**[Signature Page to Securities Purchase Agreement]**

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** EMPERY TAX EFFICIENT III, LP

By: Empery Asset Management, LP, its Authorized Agent

By: /s/ Brett S. Director

Name: Brett S. Director

Title: General Counsel of Empery Asset Management, LP

**[Signature Page to Securities Purchase Agreement]**

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** HEALTHCAP VIII, L.P.

By: its general partner HealthCap VIII GP SA represented by

By: /s/ Fabrice Bernhard /s/ Dag Richter

Name: Fabrice Bernhard Dag Richter

Title: Director Director

**[Signature Page to Securities Purchase Agreement]**

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** CVI INVESTMENTS, INC.

By: Heights Capital Management, Inc., its Authorized Agent

By: /s/ Martin Kobionger

Name: Martin Kobionger

Title: President

**[Signature Page to Securities Purchase Agreement]**

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** DAFNA LIFESCIENCE LP

By: /s/ Fariba Ghodsian

Name: Fariba Ghodisan

Title: Chief Investment Officer

**[Signature Page to Securities Purchase Agreement]**

---

IN WITNESS WHEREOF, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

PURCHASER: DAFNA LIFESCIENCE SELECT LP

By: /s/ Fariba Ghodsian

Name: Fariba Ghodsian

Title: Chief Investment Officer

[Signature Page to Securities Purchase Agreement]

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** NOVO HOLDINGS A/S

By: /s/ Scott Beardsley

Name: Scott Beardsley, under specific power of attorney

Title: Managing Partner, Novo Ventures (US), Inc.

**[Signature Page to Securities Purchase Agreement]**

---



**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** 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 A. O'Donnell, Ph.D.

Name: Niall A. O'Donnell, Ph.D.

Title: Authorized Person

**[Signature Page to Securities Purchase Agreement]**

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** 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 A. O'Donnell, Ph.D.

Name: Niall A. O'Donnell, Ph.D.

Title: Authorized Person

**[Signature Page to Securities Purchase Agreement]**

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** 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 A. O'Donnell, Ph.D.

Name: Niall A. O'Donnell, Ph.D.

Title: Authorized Person

**[Signature Page to Securities Purchase Agreement]**

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** ROCK SPRINGS CAPITAL MASTER FUND LP

By: its general partner, Rock Springs General Partner LLC

By: /s/ Mark Bussard

Name: Mark Bussard

Title: Managing Member

**[Signature Page to Securities Purchase Agreement]**

---

**IN WITNESS WHEREOF**, the undersigned has caused this Securities Purchase Agreement to be duly executed as of the date first above written.

**PURCHASER:** FOUR PINES MASTER FUND LP

By: its general partner, Four Pines General Partner LLC

By: /s/ Mark Bussard

Name: Mark Bussard

Title: Managing Member

**[Signature Page to Securities Purchase Agreement]**

---



**EXHIBIT B-1**

**FORM OF PRE-FUNDED WARRANT**

---

**EXHIBIT B-2**

**FORM OF STANDARD WARRANT**

---



