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

SCHEDULE 13D

**Under the Securities Exchange Act of 1934
(Amendment No. 4)***

Spruce Biosciences, Inc.
(Name of Issuer)

Common Stock, par value \$0.0001 per share
(Title of Class of Securities)

85209E 109
(CUSIP Number)

**Barbara Fiorini Due
Novo Holdings A/S
Tuborg Havnevej 19
Hellerup, Denmark DK-2900
+45 3527 6592**

Copy to:

**B. Shayne Kennedy, Esq.
Latham & Watkins LLP
650 Town Center Drive, 20th Floor
Costa Mesa, CA 92626
Telephone: (714) 540-1235**

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

February 16, 2023
(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition which is subject of this Schedule 13D, and is filing this statement because of Rule 13d-1(e), 13d-1(f) or 13d-1(g), check the following box.

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Rule 13d-7(b) for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 (the "Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

1.	Name of Reporting Person: Novo Holdings A/S	
2.	Check the Appropriate Box if a Member of Group (See Instructions): (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3.	SEC Use Only:	
4.	Source of Funds: WC	
5.	Check if Disclosure of Legal Proceedings is Required Pursuant to Items 2(d) or 2(e): <input type="checkbox"/>	
6.	Citizenship or Place of Organization: Denmark	
Number of Shares Beneficially Owned By Each Reporting Person With:	7.	Sole Voting Power: 8,378,336 (1)
	8.	Shared Voting Power: 0
	9.	Sole Dispositive Power: 8,378,336 (1)
	10.	Shared Dispositive Power: 0
11.	Aggregate Amount Beneficially Owned by Each Reporting Person: 8,378,336 (1)	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares: <input type="checkbox"/>	
13.	Percent of Class Represented By Amount In Row (11): 19.9% (2)	
14.	Type of Reporting Person: CO	

- (1) Represents (i) 6,722,336 shares of Common Stock and (ii) currently exercisable warrants to acquire 1,656,000 shares of common stock at an exercise price of \$3.96 per share.
- (2) Based upon (i) 23,560,250 shares of the Issuer's Common Stock ("Common Stock") outstanding as of November 04, 2022, as reported in the Issuer's Form 10-Q filed with the Securities and Exchange Commission (the "SEC") on November 10, 2022, plus (ii) the 16,916,000 additional shares of Common Stock sold and issued by the Issuer pursuant to the Securities Purchase Agreement described herein, and (iii) 1,656,000 additional shares issuable upon the exercise of the warrants held by Novo Holdings A/S.

This amendment (“Amendment No. 4”) amends the Schedule 13D originally filed with the SEC on October 16, 2020, as subsequently amended by Amendment No. 1 filed on May 21, 2021, Amendment No. 2 filed on November 22, 2022, and Amendment No. 3 on September 30, 2022 (collectively, the “Schedule”), and relates to the Common Stock. All capitalized terms contained herein but not otherwise defined shall have the meanings ascribed to such terms in the Schedule.

Item 2. Identity and Background

Item 2 is amended and replaced in its entirety as follows:

- (a) Novo Holdings A/S, a Danish corporation, is an investment firm focused on life sciences and finance that is wholly owned by Novo Nordisk Foundation (the “Foundation”), a Danish commercial foundation. Novo Holdings A/S is the holding company in the group of Novo companies (currently comprised of Novo Nordisk A/S and Novozymes A/S) and is responsible for managing the Foundation’s assets, including its financial assets. Based on the governance structure of Novo Holdings A/S and the Foundation, the Foundation is not deemed to have any beneficial ownership of the securities of the Issuer held by Novo Holdings A/S.

The name of each director and executive officer of both Novo Holdings A/S and the Foundation is set forth on the updated Schedule I to this Amendment No. 4.

- (b) The business address of both Novo Holdings A/S and the Foundation is Tuborg Havnevej 19, 2900 Hellerup, Denmark.

The residence or business address of each director and executive officer of both Novo Holdings A/S and the Foundation is set forth on the updated Schedule I to this Schedule 13D.

- (c) Novo Holdings A/S, a holding company that is responsible for managing the Foundation’s assets, provides seed and venture capital to development stage companies and invests in well-established companies within the life science and biotechnology sector.

The Foundation is a Danish self-governing and profit-making foundation, whose objectives are to provide a stable basis for commercial and research activities undertaken by the group of Novo companies and to support scientific, humanitarian and social purposes through grants.

- (d) Within the last five years, neither Novo Holdings A/S, the Foundation, nor any person named in the updated Schedule I has been convicted in any criminal proceedings.

- (e) Within the last five years, neither Novo Holdings A/S, the Foundation, nor any person named in the updated Schedule I was a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

Item 3. Source and Amount of Funds or Other Consideration

Item 3 amends and supplements Item 3 in the Schedule as follows:

On February 8, 2023, Novo Holdings A/S, among other parties, entered into a Securities Purchase Agreement with the Issuer. Pursuant to the Securities Purchase Agreement, Novo Holdings A/S purchased 2,208,000 shares of the Common Stock (“Shares”) and 1,656,000 warrants to purchase the Common Stock with an exercise price of \$3.96 per Share (“Warrants”), for a combined price of \$3.17 per share of common stock, and total consideration of \$6,999,360. At the closing of the transaction on February 16, 2023, the Issuer sold and issued, in a private placement, the Shares and Warrants to Novo Holdings A/S. The foregoing description is qualified in its entirety by the Securities Purchase Agreement incorporated by reference in this filing.

Novo Holdings A/S purchased the Shares and Warrants set forth in this Schedule 13D using funds from working capital.

Item 4. Purpose of Transaction

Item 4 of the Schedule 13D is supplemented as follows:

The information set forth in Item 3 and Item 6 of this Schedule 13D is incorporated by reference to this Item 4.

Item 5. Interest in Securities of the Issuer

Item 5 is amended and replaced in its entirety as follows:

- (a) Novo Holdings A/S beneficially owns 8,378,336 shares of Common Stock, which includes currently exercisable warrants to acquire 1,656,000 shares of common stock at an exercise price of \$3.96 per share (collectively, the “Novo Shares”), and represents approximately 19.9% of the Issuer’s outstanding shares of Common Stock, based upon (i) 23,560,250 shares of the Common Stock outstanding as of November 04, 2022, as reported in the Issuer’s Form 10-Q filed with the SEC on November 10, 2022, (ii) the 16,916,000 additional shares of Common Stock sold and issued by the Issuer pursuant to the Securities Purchase Agreement, and (iii) the 1,656,000 additional shares that would be issued upon the exercise of the warrants purchased by Novo Holdings A/S pursuant to the Securities Purchase Agreement.
- (b) Novo Holdings A/S is a Danish corporation wholly owned by the Novo Nordisk Foundation. Novo Holdings A/S has the sole power to vote and dispose of the Novo Shares. Neither the Foundation nor any person listed on the updated Schedule I has the power to direct the vote as to, or the disposition of the Novo Shares.
- (c) Except as described herein, Novo Holdings A/S has not effected any transactions in the Common Stock within the past 60 days and neither the Foundation nor any person listed on the updated Schedule I has effected any transactions in the Common Stock within the past 60 days.
- (d) Novo Holdings A/S does not know of any other person having the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, the Novo Shares.
- (e) Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer

Item 6 is amended and supplemented as follows:

On February 8, 2023, the Issuer and certain other purchasers including Novo Holdings A/S entered into a Securities Purchase Agreement pursuant to which the Issuer agreed to sell and issue (i) 16,116,000 of the Common Stock, (ii) pre-funded warrants to purchase 800,000 Shares of the Common Stock, and (iii) 12,687,000 standard warrants to purchase the Common Stock in a private placement transaction. Pursuant to the Securities Purchase Agreement, Novo Holdings A/S purchased the securities set forth in Item 3 of this Amendment No. 4.

Under the Securities Purchase Agreement, the Issuer is required to file one or more registration statements (the “Registration Statements”) covering the resale of the Common Stock and the shares of Common Stock issuable upon conversion of the Warrants issued under the Securities Purchase Agreement as soon as reasonably practicable, but in no event later than 30 days after the closing of the transaction (the “Filing Deadline”) and to cause the applicable Registration Statements to become effective within a specified period after the Filing Deadline. The Issuer is required to use its best efforts to keep the Registration Statements continuously effective until the earlier of: February 16, 2026 or the date the covered 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. Certain cash penalties will apply to the Issuer in the event of registration failures, as described in the Securities Purchase Agreement. All registration expenses incurred shall be borne by the Issuer. From February 8, 2023 and until 90 days following the effectiveness of the Registration Statements, the Issuer may not issue shares of Common

Stock or file a registration statement with the SEC for equity other than the Registration Statements, unless all securities sold under the Securities Purchase Agreement are sold or may be sold under Rule 144 during the 90 day period. The foregoing description is qualified in its entirety by the Securities Purchase Agreement incorporated by reference in this filing.

Pursuant to the Common Stock Purchase Warrant, dated February 16, 2023, the Warrants are currently exercisable, with an exercise price of \$3.96 per share, subject to adjustment, and expire February 16, 2028. The Common Stock Purchase Warrant permits cashless exercises in certain circumstances, and contains certain anti-dilution adjustments and an obligation of the Issuer, at the election of the holder in the event of a Fundamental Transaction (as defined), to purchase the warrants from the holder.

Pursuant to the Securities Purchase Agreement and the Common Stock Purchase Warrant, certain exercise limitations apply. Novo Holdings A/S may not exercise any portion of its Warrants if after the exercise Novo Holdings A/S would beneficially own more than 19.99% of the Common Stock, unless shareholder approval from the stockholders of the Issuer is obtained prior to issuance. The foregoing description is qualified in its entirety by the Form of Common Stock Purchase Warrant incorporated by reference in this filing.

Item 7. Material to be Filed as Exhibits

Exhibit A – Securities Purchase Agreement, dated February 8, 2023, by and among Spruce Biosciences, Inc. and Purchasers (incorporated by reference to Exhibit 10.1 of the Issuer’s Current Report on Form 8-K, filed with the Securities and Exchange Commission on February 9, 2023).

Exhibit B – Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.2 of the Issuer’s Current Report on Form 8-K, filed with the Securities and Exchange Commission on February 9, 2023).

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: February 21, 2023

Novo Holdings A/S

/s/ Barbara Fiorini Due

By: Barbara Fiorini Due

Its: General Counsel, Finance & Operations

Schedule I

Information regarding each director and executive officer of both Novo Holdings A/S and the Novo Nordisk Foundation is set forth below.

Novo Holdings A/S

Name, Title	Address	Principal Occupation	Citizenship
Lars Rebién Sørensen, Chairman of the Board	Christianholms Tværvej 27, 2930 Klampenborg Denmark	Professional Board Director	Denmark
Steen Riisgaard, Vice Chairman of the Board	Hestetangsvej 155, 3520 Farum, Denmark	Professional Board Director	Denmark
Jean-Luc Butel, Director	235 Arcadia Road unit # 03-04 289843 Singapore	Global Healthcare Advisor, President, K8 Global Pte Ltd.	Singapore
Jeppe Christiansen, Director	Classensgade 59, 5. th. 2100 Copenhagen Ø Denmark	Chief Executive Officer, Fondsmæglersekskabet Maj Invest A/S	Denmark
Francis Michael Cyprian Cuss, Director	111 Rippling Brook Way, Bernardsville, NJ 07924 USA	Biopharmaceutical Consultant	United Kingdom United States
Britt Meelby Jensen Director	Bukkeballevvej 10 2960 Rungsted Kyst Denmark	Professional Board Director	Denmark
Viviane Monges, Director	Chemin de Craivavers 32, 1012 Lausanne, Switzerland	Professional Board Director	France
Henrik Poulsen, Director	Emiliekildevej 36 2930 Klampenborg Denmark	Professional Board Director and Senior Advisor, A.P. Møller Holding A/S,	Denmark
Kasim Kutay, Chief Executive Officer of Novo Holdings A/S	Bredgade 65, 3.tv. 1260 Copenhagen K. Denmark	Chief Executive Officer of Novo Holdings A/S	United Kingdom
Nigel Kevin Govett Chief Financial Officer of Novo Holdings A/S	Kløvervang 10, 2970 Hørsholm, Denmark	Chief Financial Officer of Novo Holdings A/S	United Kingdom

Novo Nordisk Foundation

Name, Title	Address	Principal Occupation	Citizenship
Lars Rebién Sørensen, Chairman of the Board	Christianholms Tværvej 27 2930 Klampenborg Denmark	Professional Board Director	Denmark

Novo Nordisk Foundation

<u>Name, Title</u>	<u>Address</u>	<u>Principal Occupation</u>	<u>Citizenship</u>
Marianne Philip, Vice Chairman of the Board	Annasvej 28 2900 Hellerup Denmark	Attorney	Denmark
Mads Krosgaard Thomsen, Chief Executive Officer	Præstevejen 38 3230 Græsted Denmark	Chief Executive Officer, Novo Nordisk Foundation	Denmark
Ole Jakob Müller, Director	Borgmester Jensens A 11, 4. 0003 2100 København Ø Denmark	Environmental Consultant	Denmark
Lars Henrik Fugger, Director	72 Staunton Road, Headington OX3 7TP Oxford Great Britain	Professor, John Radcliffe Hospital, University of Oxford, Oxford, Great Britain	Denmark
Lars Henrik Munch, Director	Galionsvej 46 1437 Copenhagen K Denmark	Professional Board Director	Denmark
Liselotte Højgaard, Director	Grønningen 21 1270 Copenhagen K Denmark	Professor	Denmark
Mads Boritz Grøn, Director	Horsevænget 4 3400 Hillerød Denmark	Senior Lead Auditor	Denmark
Steen Riisgaard, Director	Hestetangsvej 155 3520 Farum Denmark	Professional Board Director	Denmark
Stig Strøbaek, Director	Furesøgårdsvej 2 3520 Farum Denmark	Electrician	Denmark