
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 13D

Under the Securities Exchange Act of 1934
(Amendment No. 2)*

Spruce Biosciences, Inc.

(Name of Issuer)

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

85209E109
(CUSIP Number)

Jeffrey Ferguson
The Carlyle Group
1001 Pennsylvania Avenue, NW
Suite 220 South
Washington, D.C. 20004
(202) 729-5626

(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 that is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(e), Rule 13d-1(f) or Rule 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 ("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	Names of Reporting Persons The Carlyle Group Inc.	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) OO	
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 Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,734,518
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,734,518	
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) 9.2%	
14	Type of Reporting Person CO	

1	Names of Reporting Persons Carlyle Holdings I GP Inc.	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) OO	
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 Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,734,518
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,734,518	
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) 9.2%	
14	Type of Reporting Person CO	

1	Names of Reporting Persons Carlyle Holdings I GP Sub L.L.C.	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) OO	
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 Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,734,518
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,734,518	
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) 9.2%	
14	Type of Reporting Person OO (Limited Liability Company)	

1	Names of Reporting Persons	
	Carlyle Holdings I L.P.	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions)	
	OO	
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	
	Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power
		0
	8	Shared Voting Power
		3,734,518
	9	Sole Dispositive Power
		0
	10	Shared Dispositive Power
		3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person	
	3,734,518	
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)	
	9.2%	
14	Type of Reporting Person	
	PN	

1	Names of Reporting Persons CG Subsidiary Holdings L.L.C.	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) OO	
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 Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,734,518
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,734,518	
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) 9.2%	
14	Type of Reporting Person OO (Limited Liability Company)	

1	Names of Reporting Persons TC Group, L.L.C.	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) OO	
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 Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,734,518
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,734,518	
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) 9.2%	
14	Type of Reporting Person OO (Limited Liability Company)	

1	Names of Reporting Persons Carlyle Investment Management L.L.C.	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) OO	
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 Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,734,518
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,734,518	
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) 9.2%	
14	Type of Reporting Person OO (Limited Liability Company)	

1	Names of Reporting Persons Carlyle Genesis UK LLC	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) OO	
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 Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,734,518
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,734,518	
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) 9.2%	
14	Type of Reporting Person OO (Limited Liability Company)	

1	Names of Reporting Persons Abingworth LLP	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) OO	
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 England and Wales	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,734,518
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,734,518	
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) 9.2%	
14	Type of Reporting Person PN	

1	Names of Reporting Persons Abingworth Bioventures VII LP	
2	Check the Appropriate Box if a Member of a Group(a) (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC Use Only	
4	Source of Funds (See Instructions) OO	
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 England and Wales	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	Sole Voting Power 0
	8	Shared Voting Power 3,734,518
	9	Sole Dispositive Power 0
	10	Shared Dispositive Power 3,734,518
11	Aggregate Amount Beneficially Owned by Each Reporting Person 3,734,518	
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) 9.2%	
14	Type of Reporting Person PN	

Explanatory Note

This Amendment No. 2 to Schedule 13D (“Amendment No. 2”) amends and supplements the Schedule 13D originally filed with the United States Securities and Exchange Commission on October 16, 2020 (as amended to date, the “Schedule 13D”), relating to the shares of common stock, par value \$0.0001 per share (the “Common Stock”), of Spruce Biosciences, Inc., a Delaware corporation (the “Issuer”). Capitalized terms used herein without definition shall have the meanings set forth in the Schedule 13D.

Item 3. Source and Amount of Funds or Other Consideration.

Item 3 of the Schedule 13D is hereby amended and supplemented as follows:

Item 4 below summarizes the amount of securities purchased by Abingworth Bioventures VII LP and consideration paid in the Private Placement (as defined below). The Reporting Persons obtained the funds used to acquire the securities through capital contributions from their partners and members.

Item 4. Purpose of Transaction.

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

Securities Purchase Agreement

On February 16, 2023 (the “Closing Date”), pursuant to a Securities Purchase Agreement (the “Securities Purchase Agreement”), dated February 8, 2023, by and among the Issuer and certain institutional investors (the “Purchasers”), the Issuer sold and issued (i) 16,116,000 shares of 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 to certain Purchasers, including to Abingworth Bioventures VII LP (the “Standard Warrants” and together with the Pre-Funded Warrants, the “Warrants”) in a private placement transaction (the “Private Placement”). As a result, Abingworth Bioventures VII LP acquired 1,104,000 shares of Common Stock and 828,000 Standard Warrants.

Each Purchaser’s Standard Warrant is exercisable for a number of shares of Common Stock equal to 75% 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 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.

Under the terms of the Securities Purchase Agreement, the Issuer has agreed to prepare and file, within 30 days after the Closing Date (the "Filing Deadline"), one or more registration statements with the Securities and Exchange Commission to register for resale the Common Stock issued under the Securities Purchase Agreement and the shares of Common Stock issuable upon conversion of the Warrants issued pursuant to the Securities Purchase Agreement, 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 Issuer in the event of registration failures, as described in the Securities Purchase Agreement.

The foregoing description of the Securities Purchase Agreement does not purport to be complete and is qualified in its entirety by the full text of such agreement, which is attached as an exhibit to this Schedule 13D and incorporated herein by reference.

Item 5. Interest in Securities of the Issuer.

Item 5 of the Schedule 13D is hereby amended and restated in its entirety as follows:

(a) – (b) The following sets forth, as of the date of this Schedule 13D, the aggregate number of shares of Common Stock and percentage of Common Stock beneficially owned by each of the Reporting Persons, as well as the number of shares of Common Stock as to which each Reporting Person has the sole power to vote or to direct the vote, shared power to vote or to direct the vote, sole power to dispose or to direct the disposition of, or shared power to dispose or to direct the disposition of, as of the date hereof, based on 39,746,116 shares of Common Stock outstanding as of the Closing Date.

Reporting Person	Amount beneficially owned	Percent of class	Sole power to vote or to direct the vote	Shared power to vote or to direct the vote	Sole power to dispose or to direct the disposition	Shared power to dispose or to direct the disposition
The Carlyle Group Inc.	3,734,518	9.2%	0	3,734,518	0	3,734,518
Carlyle Holdings I GP Inc.	3,734,518	9.2%	0	3,734,518	0	3,734,518
Carlyle Holdings I GP Sub L.L.C.	3,734,518	9.2%	0	3,734,518	0	3,734,518
Carlyle Holdings I L.P.	3,734,518	9.2%	0	3,734,518	0	3,734,518
CG Subsidiary Holdings L.L.C.	3,734,518	9.2%	0	3,734,518	0	3,734,518
TC Group, L.L.C.	3,734,518	9.2%	0	3,734,518	0	3,734,518
Carlyle Investment Management L.L.C.	3,734,518	9.2%	0	3,734,518	0	3,734,518
Carlyle Genesis UK LLC	3,734,518	9.2%	0	3,734,518	0	3,734,518
Abingworth LLP	3,734,518	9.2%	0	3,734,518	0	3,734,518
Abingworth Bioventures VII LP	3,734,518	9.2%	0	3,734,518	0	3,734,518

Includes (i) 2,896,518 shares of Common Stock held of record by Abingworth Bioventures VII LP, (ii) 10,000 shares of Common Stock underlying stock options exercisable within 60 days of the date hereof and (iii) 828,000 shares of Common Stock underlying the Standard Warrants exercisable within 60 days of the date hereof.

The Carlyle Group Inc., which is a publicly traded entity listed on Nasdaq, is the sole shareholder of Carlyle Holdings I GP Inc., which is the sole member of Carlyle Holdings I GP Sub L.L.C., which is the general partner of Carlyle Holdings I L.P., which, with respect to the securities reported herein, is the managing member of CG Subsidiary Holdings L.L.C., which is the managing member of TC Group, L.L.C., which is the managing member of Carlyle Investment Management, L.L.C., which is the sole member of Carlyle Genesis UK LLC, which is the principal member of Abingworth LLP. Abingworth Bioventures VII LP has delegated to Abingworth LLP all investment and dispositive power over the securities held of record by Abingworth Bioventures VII LP. Accordingly, each of the foregoing entities may be deemed to share beneficial ownership of the securities held of record by Abingworth Bioventures VII LP, but each disclaims beneficial ownership of such securities.

- (c) Except as disclosed in Item 4, during the past 60 days, the Reporting Persons have not effected any transactions with respect to the Common Stock.
- (d) None.
- (e) Not applicable.

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

Item 6 of the Schedule 13D is hereby amended and supplemented as follows:

Item 4 above summarizes certain provisions of the Securities Purchase Agreement and is incorporated herein by reference. A copy of this agreement is attached as an exhibit hereto and incorporated herein by reference.

Except as set forth herein, none of the Reporting Persons or Related Persons has any contracts, arrangements, understandings or relationships (legal or otherwise) with any person with respect to any securities of the Issuer, including, but not limited to, any contracts, arrangements, understandings or relationships concerning the transfer or voting of such securities, finder's fees, joint ventures, loan or option arrangements, puts or calls, guarantees of profits, division of profits or losses, or the giving or withholding of proxies.

Item 7. Materials to be Filed as Exhibits.

Item 7 of the Schedule 13D is hereby amended and restated in its entirety as follows:

<u>Exhibit Number</u>	<u>Description</u>
1	Joint Filing Agreement (previously filed).
2	Power of Attorney (previously filed).
3	Securities Purchase Agreement, dated February 8, 2023, by and among Spruce Biosciences, Inc. and the Purchasers (incorporated by reference to Exhibit 10.1 to the Issuer's Current Report on Form 8-K filed on February 9, 2023).

SIGNATURES

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.

Date: February 23, 2023

The Carlyle Group Inc.

By: /s/ Anne Frederick, attorney-in-fact

Name: Curtis L. Buser

Title: Chief Financial Officer

Carlyle Holdings I GP Inc.

By: /s/ Anne Frederick, attorney-in-fact

Name: Curtis L. Buser

Title: Managing Director and Chief Financial Officer

Carlyle Holdings I GP Sub L.L.C.

By: Carlyle Holdings I GP Inc., its sole member

By: /s/ Anne Frederick, attorney-in-fact

Name: Curtis L. Buser

Title: Managing Director and Chief Financial Officer

Carlyle Holdings I L.P.

By: /s/ Anne Frederick, attorney-in-fact

Name: Curtis L. Buser

Title: Managing Director

CG Subsidiary Holdings L.L.C.

By: /s/ Anne Frederick, attorney-in-fact

Name: Curtis L. Buser

Title: Managing Director

TC Group, L.L.C.

By: /s/ Anne Frederick, attorney-in-fact

Name: Curtis L. Buser

Title: Managing Director

Carlyle Investment Management L.L.C.By: /s/ Anne Frederick, attorney-in-fact

Name: Curtis L. Buser

Title: Chief Financial Officer

Carlyle Genesis UK LLC

By: Carlyle Investment Management L.L.C., its sole member

By: /s/ Anne Frederick, attorney-in-fact

Name: Curtis L. Buser

Title: Chief Financial Officer

Abingworth LLPBy: /s/ John Heard

Name: John Heard

Title: Authorized Signatory

Abingworth Bioventures VII LPBy: /s/ John Heard

Name: John Heard

Title: Authorized Signatory