As filed with the Securities and Exchange Commission on May 9, 2022

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Amendment No. 1 to FORM S-3 **REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933**

SENSEI BIOTHERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)

83-1863385 (I.R.S. Employer Identification Number)

451 D Street, Suite 710 Boston, Massachusetts 02210 (240) 243-8000

(Address, including zip code, and telephone number, including area code of registrant's principal executive offices)

John Celebi President and Chief Executive Officer Sensei Biotherapeutics, Inc. 451 D Street, Suite 710 Boston, Massachusetts 02210 (240) 243-8000 (Name, address, including zip code, and telephone number, including area code, of agent for service) Copies to:

> Michael E. Tenta **Mark Ballantyne** Cooley LLP **3175 Hanover Street** Palo Alto, California 94304 (650) 843-5000

From time to time after the effective date of this Registration Statement (Approximate date of commencement of proposed sale to the public)

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

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

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

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. \Box

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. \Box

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

Large accelerated filer X Non-accelerated filer

Accelerated filer X Smaller reporting company \mathbf{X} Emerging growth company

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

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

EXPLANATORY NOTE

This Pre-Effective Amendment No. 1 (this "Amendment No. 1") to the Registration Statement on Form S-3 (File No. 333-263567), originally filed March 15, 2022, with the Securities and Exchange Commission, by Sensei Biotherapeutics, Inc. (the "Registrant"), is being filed as an exhibit-only amendment to file an updated consent of Deloitte & Touche LLP, filed herewith as Exhibit 23.1 (the "Consent"). Accordingly, this Amendment No. 1 consists only of the cover page, this explanatory note, Item 16 of Part II of the Registration Statement, the signature pages to the Registration Statement and the Consent filed herewith as Exhibit 23.1. The base prospectus, sales agreement prospectus and the balance of Part II of the Registration Statement are unchanged and have been omitted.

Item 16. Exhibits

Exhibit Number	Description of Document
1.1*	Form of Underwriting Agreement.
1.2^	Open Market Sale AgreementSM, dated March 15, 2022, between the Registrant and Jefferies LLC.
3.1	Amended and Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-39980), filed with the SEC on February 11, 2021).
3.2	Amended and Restated Bylaws of the Registrant (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-39980), filed with the SEC on February 11, 2021).
4.1*	Form of Specimen Preferred Stock Certificate and Certificate of Designation of Preferred Stock.
4.2^	Form of Indenture, between the Registrant and one or more trustees to be named.
4.3*	Form of Debt Securities.
4.4^	Form of Common Stock Warrant Agreement and Warrant Certificate.
4.5^	Form of Preferred Stock Warrant Agreement and Warrant Certificate.
4.6^	Form of Debt Securities Warrant Agreement and Warrant Certificate.
4.7	Investors' Rights Agreement, dated as of December 29, 2020, by and among the Registrant and certain of its stockholders (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-252138)).
5.1^	Opinion of Cooley LLP.
23.1	Consent of Deloitte & Touche LLP, independent registered public accounting firm.
23.2^	Consent of Cooley LLP (included in Exhibit 5.1).
24.1^	Power of Attorney (included on signature page).
25.1**	Statement of Eligibility of Trustee under the Indenture.

107^ Filing Fee Table.

To be filed, if applicable, by amendment or by a report filed under the Exchange Act and incorporated herein by reference. To be filed, if applicable, in accordance with the requirements of Section 305(b)(2) of the Trust Indenture Act of 1939 and Rule 5b-3 thereunder. ** \wedge Previously filed.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Boston, Commonwealth of Massachusetts, on this 9th day of May 2022.

SENSEI BIOTHERAPEUTICS, INC.

By: /s/ John Celebi

John Celebi President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Name	Title	Date
/s/ John Celebi John Celebi	President, Chief Executive Officer and Director (Principal Executive Officer)	May 9, 2022
/s/ Erin Colgan Erin Colgan	Chief Financial Officer (Principal Financial and Accounting Officer)	May 9, 2022
* William Ringo	Chair of the Board	May 9, 2022
* James Peyer	Director	May 9, 2022
* Bob Holmen	Director	May 9, 2022
* Samuel Broder	Director	May 9, 2022
* Thomas Ricks	Director	May 9, 2022
* Deneen Vojta	Director	May 9, 2022
Jessie English	Director	May 9, 2022
Jessie English	Director	May 9, 2022

John Celebi

Attorney-in-Fact

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement No. 333-263567 on Form S-3 of our report dated March 15, 2022 relating to the financial statements of Sensei Biotherapeutics, Inc., appearing in the Annual Report on Form 10-K of Sensei Biotherapeutics, Inc. for the year ended December 31, 2021.

/s/ Deloitte & Touche LLP

Baltimore, Maryland

May 9, 2022