Registration No. 333-

## UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

### FORM S-8 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)

1405 Research Blvd, Suite 125 Rockville, MD 20850 (Address of principal executive offices) (Zip code)

2021 Equity Incentive Plan 2021 Employee Stock Purchase Plan (Full title of the plan)

John Celebi President and Chief Executive Officer Sensei Biotherapeutics, Inc. 1405 Research Blvd, Suite 125, Rockville, MD 20850 (240) 243-8000 (Name and address of agent for service) (Telephone number, including area code, of agent for service)

Copies to:

Mark Ballantyne Michael E. Tenta Cooley LLP 11951 Freedom Drive Reston, VA 20190-5640 (703) 456-8000 Christopher W. Gerry General Counsel and Secretary Sensei Biotherapeutics, Inc. 1405 Research Blvd, Suite 125 Rockville, MD 20850 (240) 243-8000

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  $\Box$ 

Non-accelerated filer  $\boxtimes$ 

Accelerated filer  $\Box$ Smaller reporting company  $\boxtimes$ Emerging growth company  $\boxtimes$ 

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.  $\Box$ 

83-1863385 (I.R.S. Employer Identification No.)

### EXPLANATORY NOTE

This Registration Statement on Form S-8 is being filed for the purpose of registering an additional (i) 500,603 shares of Common Stock of Sensei Biotherapeutics, Inc. to be issued pursuant to the 2021 Equity Incentive Plan ("2021 EIP") and (ii) 250,301 shares of Common Stock of Sensei Biotherapeutics, Inc. to be issued pursuant to the 2021 Employee Stock Purchase Plan (the "2021 ESPP"), pursuant to the provisions of the 2021 EIP and 2021 ESPP providing for automatic increases in the number of shares of Common Stock reserved and available for issuance under the 2021 EIP and 2021 ESPP on January 1, 2024. In accordance with the instructional note to Part I of Form S-8 as promulgated by the Securities and Exchange Commission, the information specified by Part I of the Form S-8 has been omitted from this Registration Statement.

### PART

II ITEM 3. INCORPORATION OF DOCUMENTS BY REFERENCE

The contents of the earlier registration statement relating to (i) the 2018 Stock Incentive Plan, (ii) the 2021 EIP and (iii) the 2021 ESPP, previously filed with the Securities and Exchange Commission on February 10, 2021 (File No. 333-252954) are incorporated herein by reference and made a part of this Registration Statement.

TEM 8.	EXHIBITS		ed by Reference		
Exhibit <u>Number</u>	Description	Schedule Form	File <u>Number</u>	<u>Exhibit</u>	Filing Date
4.1	Amended and Restated Certificate of Incorporation.	8-K	001-39980	3.1	02/11/2021
4.2	Amended and Restated Bylaws.	8-K	001-39980	3.2	02/11/2021
4.3	Certificate of Designations of the Series A Junior Participating Cumulative Preferred Stock of the Registrant.	8-K	001-39980	3.1	03/07/2023
4.4	Stockholder Rights Agreement (which includes the form of Right Certificate as Exhibit B thereto).	8-K	001-39980	4.1	03/07/2023
4.5	Sensei Biotherapeutics, Inc. 2021 Equity Incentive Plan and forms of option agreements thereunder.	S-1/A	333-252138	10.2	02/01/2021
4.6	Sensei Biotherapeutics, Inc. 2021 Employee Stock Purchase Plan.	S-1/A	333-252138	10.10	02/01/2021
4.7	Form of Restricted Stock Unit Grant Notice and Award Agreement under 2021 Equity Incentive Plan.	S-8	333-264827	4.5	05/10/2022
5.1*	Opinion of Cooley LLP.	_	_	_	_
23.1*	Consent of Cooley LLP (included in Exhibit 5.1).	_	_	_	_
23.2*	Consent of Deloitte & Touche LLP, independent registered public accounting firm.	_	_	_	_
24.1*	Power of Attorney (included on the signature page of this Form S-8).	_	_	_	_
107*	<u>Filing Fee Table</u>	_	_	_	_

2.

### 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-8 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 29th day of February, 2024.

Sensei Biotherapeutics, Inc.

Date: February 29, 2024

By:

/s/ John Celebi John Celebi

President and Chief Executive Officer

### POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints John Celebi and Erin Colgan, each of them, as his or her true and lawful attorneys-in-fact and agents, each with the full power of substitution, for him or her and in their name, place or stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement on Form S-8, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-infact and agents or any of them, or his, her or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Report has been signed below by the following persons on behalf of the Registrant 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)	February 29, 2024		
/s/ Erin Colgan Erin Colgan	Chief Financial Officer (Principal Financial and Accounting Officer)	February 29, 2024		
/s/ William Ringo	Chair	February 29, 2024		
William Ringo /s/ Bob Holmen Bob Holmen	Director	February 29, 2024		
/s/ James Peyer, Ph.D. James Peyer, Ph.D.	Director	February 29, 2024		
/s/ Thomas Ricks	Director	February 29, 2024		
Thomas Ricks /s/ Deneen Vojta, M.D.	Director	February 29, 2024		
Deneen Vojta, M.D. /s/ Jessie English, Ph.D. Jessie English, Ph.D.	Director	February 29, 2024		
/s/ Kristian Humer Kristian Humer	Director	February 29, 2024		

3.

# Cooley

Mark Ballantyne T: +1 703 456 8084 mballantyne@cooley.com

February 29, 2024

Sensei Biotherapeutics, Inc. 1405 Research Blvd Suite 125 Rockville, MD 20850 Ladies and Gentlemen: We have acted as counsel to Sensei Biotherapeu

We have acted as counsel to Sensei Biotherapeutics, Inc., a Delaware corporation (the "*Company*"), in connection with the filing by the Company of a Registration Statement on Form S-8 (the "*Registration Statement*") with the Securities and Exchange Commission (the "*Commission*") covering the offering of (a) up to 750,904 shares (the "*Shares*") of the Company's Common Stock, par value \$0.0001 per share (the "*Common Stock*"), consisting of (i) 500,603 shares of the Company's Common Stock issuable pursuant to the Company's 2021 Equity Incentive Plan (the "*2021 EIP*"), and (ii) 250,301 shares of the Company's Common Stock issuable pursuant to the Company's 2021 Employee Stock Purchase Plan (together with the 2021 EIP, the "*Plans*"), and (b) the preferred stock purchase rights (the "*Rights*") associated with the Shares as set forth in that certain Stockholder Rights Agreement, dated March 7, 2023 (as amended June 23, 2023, the "*Rights Agreement*"), between the Company and American Stock Transfer & Trust Company, LLC, as rights agent (the "*Rights Agent*").

In connection with this opinion, we have examined and relied upon (a) the Registration Statement and the related prospectuses, (b) the Company's certificate of incorporation and bylaws, each as currently in effect, (c) the Plans, (d) the Rights Agreement and (e) such other records, documents, certificates, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. We have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to originals of all documents submitted to us as copies, the accuracy, completeness and authenticity of certificates of public officials and the due authorization, execution and delivery of all documents by all persons other than the Company where authorization, execution and delivery are prerequisites to the effectiveness thereof. As to certain factual matters, we have relied upon a certificate of an officer of the Company and have not independently verified such matters.

With respect to our opinion concerning the Rights:

(i) Our opinion does not address the determination a court of competent jurisdiction may make regarding whether the Company's board of directors (the "**Board**") may be required to redeem or terminate, or take other action with respect to, the Rights or Rights Agreement in the future based on the facts and circumstances then existing.

(ii) Our opinion assumes that the Rights Agreement has been duly authorized, executed and delivered by the Rights Agent and that members of the Board have acted in a manner consistent with their fiduciary duties as required under applicable law in adopting the Rights Agreement. With respect to the Rights associated with the Shares to be offered in the future under the Registration Statement, our opinion assumes the Rights Agreement has not been terminated by the Company or expired by its terms and the Rights have not expired or been redeemed or exchanged by the Company, in each case, prior to the issuance of such Shares.

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(iii) Our opinion addresses corporate procedures in connection with the issuance of the Rights associated with shares of Common Stock of the Company, and not any particular provision of the Rights or the Rights Agreement. It should be understood that it is not settled whether the invalidity of any particular provision of a rights agreement or purchase rights issued thereunder would invalidate such rights in their entirety.

Our opinion is expressed only with respect to the General Corporation Law of the State of Delaware. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

On the basis of the foregoing, and in reliance thereon, and subject to the qualifications set forth herein, we are of the opinion that the Shares and the associated Rights, when sold and issued in accordance with the Plans, the Registration Statement and the related prospectuses, will be validly issued, and the Shares will be fully paid and nonassessable (except as to shares issued pursuant to deferred payment arrangements, which will be fully paid and nonassessable when such deferred payments are made in full).

This opinion is limited to the matters expressly set forth in this letter, and no opinion should be implied, or may be inferred, beyond the matters expressly stated. This opinion speaks only as to law and facts in effect or existing as of the date hereof and we have no obligation or responsibility to update or supplement this letter to reflect any facts or circumstances that may hereafter come to our attention or any changes in law that may hereafter occur.

We consent to the filing of this opinion as an exhibit to the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act of 1933, as amended, or the rules and regulations of the Commission thereunder.

Sincerely

Cooley LLP

By: <u>/s/ Mark Ballantyne</u> Mark Ballantyne

Cooley LLP Reston Town Center 11951 Freedom Drive 14th Floor Reston, VA 20190-5656 t: +1 703 456 8000 f: +1 703 456 8100 cooley.com

### Exhibit 23.2

### CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated February 29, 2024 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, 2023.

/s/ Deloitte & Touche LLP

Baltimore, Maryland

February 29, 2024

### Calculation of Filing Fee Table

Form S-8 (Form Type)

### Sensei Biotherapeutics, Inc.

(Exact Name of Registrant as Specified in its Charter)

#### Table 1: Newly Registered

		Registered	l			
Security Security Class Title Type	Fee Calculation Rule	Amount Registered(1)	Proposed Maximum Offering Price Per Share	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Equity Common Stock, par value \$0.0001 per share, Sensei Biotherapeutics, Inc. 2021 Equity Incentive Plan	Other(3)	500,603 (3)	\$0.775(5)	\$387,967.33	\$0.0001476	\$57.26
Equity Common Stock, par value \$0.0001 per share, Sensei Biotherapeutics, Inc. 2021 Employee Share Purchase Plan	Other(4)	250,301 (4)	\$0.775(5)	\$193,983.28	\$0.0001476	\$28.63
Total Offering Am		\$581,950.61		—		
Total Fees Previously				—		
Total Fee Offset				—		
Net Fee Due				\$85.89		

- (1) Pursuant to Rule 416(a) promulgated under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement shall also cover any additional shares of common stock, par value \$0.0001 per share ("Common Stock") of Sensei Biotherapeutics, Inc. (the "Registrant") that become issuable under the 2021 Equity Incentive Plan (the "2021 EIP") or 2021 Employee Stock Purchase Plan (the "2021 ESPP") set forth herein by reason of any stock dividend, stock split, recapitalization, or other similar transaction effected that results in an increase to the number of outstanding shares of Registrant's Common Stock, as applicable.
- (2) Each share of the Registrant's Common Stock being registered hereunder, if issued prior to the termination by the Registrant of its Stockholder Rights Agreement (the "Rights Agreement"), dated March 7, 2023, between the Registrant and the rights agent named therein, includes Series A Junior Participating Cumulative Preferred Stock purchase rights (the "Rights"). Prior to the occurrence of certain events, the Rights will not be exercisable or evidenced separately from the Registrant's Common Stock and have no value except as reflected in the market price of the shares to which they are attached.
- (3) Represents shares of Common Stock that were added to the shares authorized for issuance under the 2021 EIP on January 1, 2024 pursuant to an "evergreen" provision contained in the 2021 EIP.
- (4) Represents shares of Common Stock that were added to the shares authorized for future issuance under the 2021 ESPP on January 1, 2024 pursuant to an "evergreen" provision contained in the 2021 ESPP.
- (5) Estimated in accordance with Rule 457(c) and Rule 457(h) promulgated under the Securities Act solely for the purpose of calculating the registration fee. The offering price per share and the aggregate offering price are based upon a per share price of \$0.775, which is the average of the high and low prices per share of the Registrant's Common Stock on February 23, 2024, as reported on The Nasdaq Global Market.