

Prospectus Supplement No. 5
(To Prospectus dated September 29, 2022)



SENTI BIOSCIENCES, INC.

Up to 8,727,049 Shares of Common Stock

This prospectus supplement no. 5 (this “Prospectus Supplement”) amends and supplements the prospectus dated September 29, 2022 (as supplemented or amended from time to time, the “Prospectus”) which forms part of our Registration Statement on Form S-1 (Registration Statement No. 333-267390). This Prospectus Supplement is being filed to update and supplement the information included or incorporated by reference in the Prospectus with the information contained in our Current Report on Form 8-K, filed with the Securities and Exchange Commission (the “SEC”) on April 28, 2023 (the “Form 8-K”). Accordingly, we have attached the Form 8-K to this Prospectus Supplement.

This Prospectus Supplement updates and supplements the information in the Prospectus and is not complete without, and may not be delivered or utilized except in combination with, the Prospectus, including any amendments or supplements thereto. This Prospectus Supplement should be read in conjunction with the Prospectus, and if there is any inconsistency between the information in the Prospectus and this Prospectus Supplement, you should rely on this Prospectus Supplement.

Our common stock is listed on The Nasdaq Global Market (“Nasdaq”) under the symbol “SNTI”. On April 27, 2023, the last quoted sale price for the Senti Common Shares as reported on Nasdaq was \$0.97 per share.

We are an “emerging growth company” under applicable federal securities laws and will be subject to reduced public company reporting requirements.

Investing in our securities involves a high degree of risk. Before buying any securities, you should carefully read the discussion of the risks of investing in our securities in “Risk Factors” beginning on page 8 of the Prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the securities to be issued under the Prospectus or determined if the Prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this Prospectus Supplement is April 28, 2023.

**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): April 28, 2023

SENTI BIOSCIENCES, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

001-40440
(Commission
File Number)

86-2437900
(IRS Employer
Identification No.)

2 Corporate Drive, First Floor
South San Francisco, California 94080
(Address of principal executive offices including zip code)

Registrant's telephone number, including area code: (650) 382-3281

(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	Name of each exchange on which registered
Common Stock, par value \$0.0001 per share	SNTI	The Nasdaq Global 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 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.

(a)

On April 26, 2023, Mr. David R. Epstein, informed the board of directors (the “Board”) of Senti Biosciences, Inc. (“Senti”) of his intention to resign as a director of Senti, including resignation from all the committees of the Board on which he serves, effective as of the close of business on June 16, 2023. Mr. Epstein has resigned in order to minimize potential conflict or the appearance of conflict with his role as Chief Executive Officer of Seagen, Inc. (an oncology company) rather than because of any disagreement relating to any of Senti’s operations, policies or practices. He has expressed his support for Senti’s mission to transform cell and gene therapies with gene circuits going forward. Senti would like to thank Mr. Epstein for his contributions and service on its Board.

SIGNATURE

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 hereunto duly authorized.

SENTI BIOSCIENCES, INC.

Date: April 28, 2023

By: /s/ Timothy Lu
Name: Timothy Lu, M.D., Ph.D.
Title: Chief Executive Officer & President