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): December 22, 2023

SENTI BIOSCIENCES, INC.
(Exact name of registrant as specified in its charter)

Delaware	001-40440	86-2437900
(State or other jurisdiction of incorporation)	(Commission File Number)	(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) 239-2030

(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 7.01 Regulation FD Disclosure.

On December 22, 2023, Senti Biosciences, Inc. (the "Company") issued a press release announcing the Company's receipt of clearance of its investigational new drug ("IND") application from the U.S. Food and Drug Administration ("FDA") for SENTI-202, the Company's candidate for patients with relapsed or refractory (r/r) CD33 and/or FLT3 expressing hematologic malignancies, including acute myeloid leukemia ("AML"). A copy of the press release is attached as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated herein by reference.

The information in this Item 7.01 of Form 8-K and Exhibit 99.1 attached hereto is furnished and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended.

Item 8.01 Other Events.

On December 22, 2023, the Company announced that it received IND clearance from the FDA and that the Company may now proceed with a Phase 1 clinical trial to assess SENTI-202 in patients with relapsed or refractory (r/r) CD33 and/or FLT3 expressing hematologic malignancies, including AML.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
99.1	Press Release, dated December 22, 2023
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

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: December 22, 2023

By: /s/ Timothy Lu

Name: Timothy Lu, M.D., Ph.D.

Title: Chief Executive Officer & President

Senti Bio Announces FDA Clearance of IND Application for SENTI-202 for the Treatment of Relapsed or Refractory Hematologic Malignancies Including Acute Myeloid Leukemia

– First patient in Phase 1 clinical trial expected to be treated in Q2 2024 –

– Initial clinical efficacy data expected by year-end 2024 and durability data expected in 2025 –

– SENTI-202 is a potential first-in-class off-the-shelf CAR-NK cell therapy using Logic Gated Gene Circuits to selectively target cancer cells while sparing healthy bone marrow cells –

SOUTH SAN FRANCISCO, Calif., December 20, 2023 — Senti Biosciences, Inc. (Nasdaq: SNTI) ("Senti Bio"), a clinical stage biotechnology company developing next-generation cell and gene therapies using its proprietary Gene Circuit platform, today announced that it received clearance of its Investigational New Drug (IND) application from the U.S. Food and Drug Administration (FDA) for SENTI-202, an off-the-shelf chimeric antigen receptor natural killer (CAR-NK) cell therapy product candidate designed to selectively target and eliminate CD33 and/or FLT3 expressing hematologic malignancies while sparing healthy bone marrow cells.
The Company plans to initiate a Phase 1 clinical trial of SENTI-202 in 2024 in multiple sites in the United States and Australia, and expects to treat the first patient in the second quarter of 2024. The dose finding trial will evaluate two dose levels, either 1 or 1.5 billion SENTI-202 cells, administered after lymphodepleting conditioning in adult patients with relapsed or refractory (r/r) CD33 and/or FLT3 expressing hematologic malignancies, including acute myeloid leukemia (AML). Initial dosing will consist of three doses administered weekly following lymphodepletion, with the option to receive continuation cycles of lymphodepletion and SENTI-202 cells based on safety and efficacy data.

"Clearance of our IND application for SENTI-202 is a tremendous milestone and marks an important achievement for Senti as we transition to a clinical-stage therapeutics company," said Timothy Lu, MD, PhD, Chief Executive Officer and Co-Founder of Senti Bio. "Our team has dedicated immense time and resources to developing our Gene Circuit technology from an initial synthetic biology hypothesis to what is now a tangible product for cancer patients. We look forward to initiating Senti's first clinical trial and continuing our strong momentum into next year."

A limitation of many existing cancer therapies, according to the Company, is that current treatments cannot precisely distinguish cancer cells from healthy cells, leading to side effects and limited efficacy due to dosing limitations from these safety events. Furthermore, AML is polyclonal and heterogenous, and requires multiple antigens to be targeted in order to achieve deep and durable responses. SENTI-202 utilizes proprietary Logic Gating technology designed to overcome AML disease heterogeneity by targeting both the cancer cells and leukemic stem cells through its OR GATE, which can kill cancer cells that express either CD33 and/or FLT3. SENTI-202 also incorporates the NOT GATE that recognizes healthy cells through a protective antigen, and spares healthy bone marrow cells even if they express CD33 and/or FLT3. Finally, SENTI-202 expresses a proprietary calibrated release IL15, which has the ability to enhance both the CAR- NK cells, as well as patient immune cell function in the leukemic milieu to further enhance activity. Senti Bio believes this approach can lead to more effective and durable responses in patients.

"SENTI-202 has been systematically engineered to potentially overcome the key limitations of current AML therapies, namely the need to address AML heterogeneity and to protect healthy marrow cells from on-target and off-tumor killing," said Kanya Rajangam, MD, PhD, Head of Research & Development and Chief Medical Officer of Senti Bio. "Our trial design incorporates lessons learnt from clinical experiences with other AML cell therapies and includes disease-specific lymphodepletion, multiple high doses of CAR-NK cells, as well as multiple treatment cycles. We are excited to begin this trial and deliver a potential treatment to patients who currently have no approved therapies and very poor prognosis."

The Company expects to disclose initial efficacy data from the Phase 1 trial by year-end 2024 and durability data in 2025. Through Senti Bio's previously announced agreement with GeneFab, the Company has prepaid the majority of manufacturing-related expenses through the completion of the Phase 1 trial.

About SENTI-202
SENTI-202 is a Logic Gated off-the-shelf CAR-NK cell therapy product candidate designed to selectively target and eliminate CD33 and/or FLT3 expressing hematologic malignancies, such as acute myeloid leukemia (AML) and myelodysplastic syndrome (MDS), while sparing healthy bone marrow cells. SENTI-202 has three main components. First, the OR GATE, which is an activating CAR that targets CD33 and FLT3. By targeting either or both of these antigens, SENTI-202 could effectively kill both the leukemic blasts and leukemic stem cells that form an important basis for AML disease. Second, the NOT GATE, which is designed to recognize the healthy cells and protect those healthy cells from being killed. Third, the calibrated-release IL-15 technology, which is designed to significantly increase cell persistence, expansion and activity of both the CAR- NK cells and the host immune cells. The NK cells used to construct SENTI-202 are sourced from healthy adult donors, which have been screened based on a set of criteria that reflect manufacturability and product quality, and are then cryopreserved prior to use in manufacturing to minimize variability. Senti Bio is currently enrolling adult patients with r/r CD33 and/or FLT3 expressing heme malignancies in a Phase 1 clinical trial for SENTI-202, which can be a potential first-in-class allogenic treatment for AML/MDS patients.

About Acute Myeloid Leukemia
Acute myeloid leukemia is a cancer of the blood and bone marrow and is the most common type of acute leukemia in adults. It is estimated there will be 20,380 new cases of AML in the United States in 2023. The five-year survival rate for these patients is approximately 30%. AML is currently treated with chemotherapy, targeted therapies, and/or allogeneic or autologous stem cell transplant. For patients with relapsed or refractory AML, there are few treatment options and median overall survival is typically less than seven months.

About Senti Bio
Senti Biosciences is a biotechnology company developing a new generation of cell and gene therapies for patients living with incurable diseases. To achieve this, Senti Bio is leveraging a synthetic biology platform called Gene Circuits to create therapies with enhanced precision and control. These Gene Circuits are designed to precisely kill cancer cells, spare healthy cells, increase specificity to target cells and control the expression of drugs even after administration. These Gene Circuits work in many different genetic medicine modalities, including T cells, NK cells, induced pluripotent stem cells (iPSCs), and gene therapy. The Company's wholly-owned pipeline utilizes off-the-shelf chimeric antigen receptor natural killer (CAR-NK) cells, outfitted with Gene Circuits, to target challenging liquid and solid tumor indications. Senti Bio has also preclinically demonstrated the potential breadth Gene Circuits in other modalities, diseases outside of oncology, and continues to advance these capabilities through partnerships with Spark Therapeutics and BlueRock Therapeutics.

Forward-Looking Statements
This press release and document contain certain statements that are not historical facts and are considered forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These forward-looking statements generally are identified by the words "believe," "could," "predict," "continue," "ongoing," "project," "expect," "anticipate," "estimate," "intend," "strategy," "future," "opportunity," "plan," "may," "should," "will," "would," "will be," "will continue," "will likely result," "forecast," "seek," "target" and similar expressions that predict or indicate future events or trends or that are not statements of historical matters. Forward-looking statements are predictions, projections, and other statements about future events that are based on current expectations of Senti Bio's management and assumptions, whether or not identified in this document, and, as a result, are subject to risks and uncertainties. Forward-looking statements include, but are not limited to statements regarding: the clinical and therapeutic potential of Senti Bio's programs; the status and progress of Senti Bio's clinical trials, including patient treatment, dosing, trial design and initial data, and the timing thereof; Senti Bio's manufacturing costs; as well as statements about the potential attributes and benefits of Senti Bio's platform technology. These forward-looking statements are provided for illustrative purposes only and are not intended to serve as and must not be relied on by any investor as, a guarantee, an assurance, a prediction, or a definitive statement of fact or probability. Actual events and circumstances are difficult or impossible to predict and will differ from assumptions. Many actual events and circumstances are beyond the control of Senti Bio. Many factors could cause actual future results to differ materially from the forward-looking statements in this document, including but not limited to: (i) changes in domestic and foreign business, market, financial, political and legal conditions, (ii) changes in the competitive and highly regulated industries in which Senti Bio operates, variations in operating performance across competitors, changes in laws and regulations affecting Senti Bio's business, (iii) the ability to implement business plans, forecasts and other expectations, (iv) the risk of downturns and a changing regulatory landscape in Senti Bio's

highly competitive industry, (v) risks relating to the uncertainty of any projected financial information with respect to Senti Bio, (vi) risks related to uncertainty in the timing or results of Senti Bio's preclinical and clinical studies, and GMP manufacturing startup activities, (vii) Senti Bio's dependence on third parties in connection with preclinical and clinical studies, and in connection with GMP manufacturing activities, (viii) risks related to delays and other impacts from macroeconomic and geopolitical events, increasing rates of inflation and rising interest rates on business operations, and (ix) the success of any future research and development efforts by Senti Bio. The foregoing list of factors is not exhaustive. You should carefully consider the foregoing factors and the other risks and uncertainties described in the "Risk Factors" section of Senti Bio's most recently filed periodic report, and other documents filed by Senti Bio from time to time with the SEC. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements in this document. There may be additional risks that Senti Bio does not presently know, or that Senti Bio currently believes are immaterial that could also cause actual results to differ from those contained in the forward-looking statements in this document. Forward-looking statements speak only as of the date they are made. Senti Bio anticipates that subsequent events and developments may cause Senti Bio's assessments to change. Except as required by law, Senti Bio assumes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events, or otherwise.

Availability of Other Information About Senti Biosciences, Inc.
For more information, please visit the Senti Bio website at https://www.sentibio.com or follow Senti Bio on Twitter (@SentiBio) and LinkedIn (Senti Biosciences). Investors and others should note that we communicate with our investors and the public using our company website (www.sentibio.com), including, but not limited to, company disclosures, investor presentations and FAQs, Securities and Exchange Commission filings, press releases, public conference call transcripts and webcast transcripts, as well as on Twitter and LinkedIn. The information that we post on our website or on Twitter or LinkedIn could be deemed to be material information. As a result, we encourage investors, the media and others interested to review the information that we post there on a regular basis. The contents of our website or social media shall not be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended.

Investor/Media Contact
Ron Moldaver
650.246.7042
ron.moldaver@sentibio.com