UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

Date of Report: April 17, 2023

Commission File Number: 001-36891

Cellectis S.A. (Exact Name of registrant as specified in its charter)

8, rue de la Croix Jarry 75013 Paris, France +33 1 81 69 16 00 (Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F. Form 20-F [X] Form 40-F []

EXHIBIT INDEX

Exhibit Title

99.1 Press release, dated April 17, 2023

SIGNATURES

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, thereunto duly authorized.

Cellectis S.A. (Registrant)

Date: April 17, 2023 /s/ André Choulika André Choulika

Chief Executive Officer

Cellectis Presents Preclinical Data on TALEN®-edited MUC1 CAR T-cells to Enhance Efficacy in Targeting Triple Negative Breast Cancer at the American Association for Cancer Research (AACR) Annual Meeting

NEW YORK, April 17, 2023 (GLOBE NEWSWIRE) -- Cellectis (the "Company") (Euronext Growth: ALCLS - NASDAQ: CLLS), a clinical-stage biotechnology company using its pioneering gene-editing platform to develop life-saving cell and gene therapies, today released preclinical data on TALEN®-edited MUC1 CAR T-cells at the American Association for Cancer Research (AACR) Annual Meeting 2023. The data showed the capability of armored allogeneic MUC1 CAR T-cells to excel in the immune suppressive tumor micro-environment suggesting that they could be an effective option in treating relapsed and refractory triple negative breast cancer (TNBC) patients with limited therapeutic options.

Tumor-associated MUC1 antigen is overexpressed in a large number of TNBC patients offering an effective discriminatory target for CAR T-cell therapy.

Cellectis' MUC1 CAR T-cells are allogeneic and target Mucin 1 for TNBC and a variety of epithelial cancers. As other solid tumor targets can be plagued by safety concerns due to off-tumor expression, MUC1 is of high interest as its expression in normal epithelium is restricted to apical membranes. Additionally, MUC1 heavy glycosylation in normal tissue contrasts with Cellectis' MUC1 CAR that is designed to recognize hypoglycosylated MUC1 present in cancer cells. Cellectis' MUC1 CAR T-cells incorporate up to four TALEN®-mediated knockouts and two knock-ins.

"We are very excited to share these encouraging preclinical data at AACR that dissect how different attributes (knock-out or knock-in) contribute to the efficacy of our CAR T-cell product candidate," said Laurent Poirot, Ph.D., Senior Vice President Immunology at Cellectis. "We are convinced that allogeneic MUC1 CART-cells can be an effective option in the treatment of relapsed and refractory triple negative breast cancer."

The poster presentation at AACR highlights the following preclinical data:

- Intratumoral delivery of antigen-specific CAR T-cells resulted in effective control of tumor growth.
- Results demonstrate superior activity of armored MUC1-CAR T-cells not only in tumor clearance but also in the recovery of normal glands.
- Thus, innovative strategies can be used to allow CAR T-cell efficiency in the hostile tumor microenvironment while preserving safety.

Title: Deciphering the benefits of variable delivery routes and molecular armoring to enhance efficacy of MUC1-CAR T-cells in targeting triple-negative breast cancer

Session Title: Adoptive Cell Therapy 1

Presenter: Piril, Erler, Ph.D., Scientist II, Immuno-Oncology, Cellectis

Session Date and time: Sunday, April 16, 2023, 1:30-5:00 PM ET

Location: Section 37 **Poster Board Number:** 14

Abstract Presentation Number: 899

Poster of the presentation is available on Cellectis' website: https://www.cellectis.com/en/investors/scientific-presentations/

About Cellectis

Cellectis is a clinical-stage biotechnology company using its pioneering gene-editing platform to develop life-saving cell and gene therapies. Cellectis utilizes an allogeneic approach for CAR-T immunotherapies in oncology, pioneering the concept of off-the-shelf and ready-to-use gene-edited CAR T-cells to treat cancer patients, and a platform to make therapeutic gene editing in hemopoietic stem cells for various diseases. As a clinical-stage biopharmaceutical company with over 23 years of experience and expertise in gene editing, Cellectis is developing life-changing product candidates utilizing TALEN[®], its gene editing technology, and PulseAgile, its pioneering electroporation system to harness the power of the immune system in order to treat diseases with unmet medical needs. Cellectis' headquarters are in Paris, France, with locations in New York, New York and Raleigh, North Carolina. Cellectis is listed on the Nasdaq Global Market (ticker: CLLS) and on Euronext Growth (ticker: ALCLS).

Forward-looking Statements

This press release contains "forward-looking" statements within the meaning of applicable securities laws, including the Private Securities Litigation Reform Act of 1995. Forward-looking statements may be identified by words such as "anticipate," "believe," "intend", "expect," "plan," "scheduled," "could" and "will," or the negative of these and similar expressions. These forward-looking statements, which are based on our management's current expectations and assumptions and on information

currently available to management. Forward-looking statements include statements about the potential of our preclinical programs. These forward-looking statements are made in light of information currently available to us and are subject to numerous risks and uncertainties, including with respect to the numerous risks associated with biopharmaceutical product candidate development. With respect to our cash runway, our operating plans, including product development plans, may change as a result of various factors, including factors currently unknown to us. Furthermore, many other important factors, including those described in our Annual Report on Form 20-F and the financial report (including the management report) for the year ended December 31, 2022 and subsequent filings Cellectis makes with the Securities Exchange Commission from time to time, as well as other known and unknown risks and uncertainties may adversely affect such forward-looking statements and cause our actual results, performance or achievements to be materially different from those expressed or implied by the forward-looking statements. Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons why actual results could differ materially from those anticipated in the forward-looking statements, even if new information becomes available in the future.

For further information on Cellectis, please contact:

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Attachment

AACR data PR (https://ml.globenewswire.com/Resource/Download/04bfd998-c6db-4160-ab1c-0d9b901ef12a)