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

For the month of April 2022

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 [ ]

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7):

EXHIBIT INDEX

Exhibit	Title
99.1	Press Release dated April 28, 2022

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 28, 2022

/s/ André Choulika
André Choulika
Chief Executive Officer

EXHIBIT 99.1

Cellectis Publishes Two Articles in Nature Communications Providing Strong Preclinical Validation of UCART123 to Treat AML and BPDCN

- *Preclinical data demonstrates that UCART123 effectively eliminates AML with no major impact on normal hematopoietic progenitor cells*
- *Preclinical data shows proof-of-principle that UCART123 cells have potent anti-BPDCN activity*
- *Human evaluation of UCART123 is currently in Phase 1 clinical trial in the AMELI-01 study for the treatment of r/r AML*

NEW YORK, April 28, 2022 (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, announced the publication of two manuscripts in ***Nature Communications*** on its product candidate UCART123, currently being evaluated in the Phase 1 dose-escalation trial AMELI-01 in patients with relapsed or refractory acute myeloid leukemia (r/r AML). These preclinical data demonstrate the robust *in vitro* and *in vivo* activity of UCART123 and provide pre-clinical proof of concept for an allogenic CART cell approach to tackle AML.

Allogeneic TCRαβ Deficient CAR T-cells Targeting CD123 in Acute Myeloid Leukemia

This preclinical study, led by Dr Monica Guzman, Ph.D., Division of Hematology and Oncology, Department of Medicine Weill Cornell Medical College, demonstrated that Cellectis' product candidate UCART123 effectively eliminates AML cells *in vitro* and *in vivo* with improvements in overall survival and minimal impact against normal hematopoietic progenitors.

AML is a disease originated and maintained from leukemia stem cells (LSCs). CD123 is a cell surface antigen expressed on AML blasts as well as LSCs. In this study, the potential of allogeneic gene-edited CAR T cells targeting CD123 to eliminate LSCs (UCART123) was evaluated.

"While the majority of the few CD123 T-cell therapies evaluated to date rely on autologous approaches with complex clinical and logistical barriers, this set of preclinical results strongly supports the potential benefits of the allogeneic CAR T approach in AML. UCART123 exhibits unprecedented primary AML-selective cytotoxic activity and minimal effects against normal cells, which was a major drawback reported in previous preclinical studies performed with other CD123 targeted CARs" said Mark Frattini, MD, Ph.D., Senior Vice President, Head of Clinical Sciences at Cellectis.

Preclinical results showed that:

- UCART123 demonstrates cytotoxic activity against primary AML samples with minimum toxicity against normal hematopoietic progenitor cells
- UCART123 targets AML cells *in vivo* and results in improved overall survival in patient-derived xenografts (PDX) models
- UCART123 selectively clears primary AML cells, without affecting hematopoiesis, in a competitive humanized mouse model harboring primary AML and normal bone marrow cells

Targeting CD123 in Blastic Plasmacytoid Dendritic Cell Neoplasm using Allogeneic Anti-CD123 CAR T Cells

This preclinical study, led by Professor Marina Konopleva, M.D., Ph.D., Department of Leukemia, University of Texas MD Anderson Cancer Center, demonstrated the antitumor activity of UCART123 in preclinical models of blastic plasmacytoid dendritic cell neoplasm (BPDCN).

BPDCN is a rare hematologic malignancy with poor outcomes with conventional therapy. Given that CD123 is differentially expressed on the surface of BPDCN cells, it has emerged as an attractive therapeutic target.

In this study, the antitumor activity of allogeneic CD123 CAR T cells (UCART123) was demonstrated by *in vitro* and *in vivo* assays using primary BPDCN samples.

Preclinical results showed that:

- UCART123 cells result in specific killing of BPDCN primary samples *in vitro* and in xenograft (PDX) experiments *in vivo*
- Cytokine production levels in mice correlate with tumor burden at the time of UCART123 administration
- Tumor relapse was observed upon loss of CD123, through diverse genetic mechanism, in one of the PDX models

"These preclinical results support our rationale of using allogeneic CD123 CAR T cells to treat AML. Cellectis' UCART123 is the first allogeneic product candidate to demonstrate elimination of AML and BPDCN cells in PDX mouse experiments, with significant benefits in overall survival and low impact on hematopoietic progenitor cells. This brings us one step closer to delivering these innovative therapies to patients with unmet medical needs" said Roman Galetto, Sr. Director Preclinical & Program Management at Cellectis.

Cellectis' AMELI-01 clinical study is currently enrolling patients at Dose Level 2 (6.25×10^5 cells/kg) with Fludarabine Cyclophosphamide and Alemtuzumab (FCA) preconditioning regimen.

Articles are available on the Nature Communications website, by clicking on the links below:

Allogeneic TCRαβ Deficient CAR T-cells Targeting CD123 in Acute Myeloid Leukemia

Targeting CD123 in Blastic Plasmacytoid Dendritic Cell Neoplasm using Allogeneic Anti-CD123 CAR T Cells

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 22 years of 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).

For more information, visit www.cellectis.com.

Follow Cellectis on social media: @cellectis, LinkedIn and YouTube.

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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 meaning of the preclinical results of our product candidates and the resulting outcome on our clinical results. 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, 2021 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.

Attachment

- UCART123_PR_ENGLISH_FINAL (1).pdf (https://ml.globenewswire.com/Resource/Download/69e15cbc-458e-456f-8a03-519d595c80a8)