PRESS RELEASE

Cellectis Presents Initial Preclinical Data on Two Novel Gene Therapies for Patients with RAG1 Severe Combined Immunodeficiency (SCID) and Hyper IgE syndrome at ESGCT 2021

October 19, 2021 – New York - Cellectis S.A. (NASDAQ: CLLS – EURONEXT GROWTH: ALCLS) (the "Company"), a gene-editing company with clinical-stage immuno-oncology programs using allogeneic chimeric antigen receptor (CAR)-T cells and gene therapy programs for genetic diseases, in collaboration with Professor Toni Cathomen, scientific director at the Center for Chronic Immunodeficiency Medical Center at the University of Freiburg, Germany, will present two oral presentations at the European Society of Gene and Cell Therapy (ESGCT) Congress to be held virtually from October 19-22, 2021.

Professor Cathomen's team at University of Freiburg will be presenting encouraging pre-clinical data that supports further evaluation of Cellectis' .HEAL platform, an innovative gene therapy platform that uses a genome editing approach based on TALEN® , for two product candidates targeting primary immunodeficiencies: RAG1 for Severe Combined Immunodeficiency (SCID) and STAT3 for Hyper IgE syndrome.

'The data accepted for presentation at ESGCT reflects our ongoing commitment to finding new ways to treat and potentially provide a cure to patients that have failed to respond to standard therapies. Utilizing Cellectis' TALEN® technology, which we believe to be the most precise, versatile, and effective gene editing tool currently available, we demonstrate our potential to precisely correct RAG1 and STAT3 deficient genes and restore functionalities of the gene. These new milestones bring us one step closer to our goal of unlocking the full potential of our gene editing platform and bringing new therapies to patients with unmet medical needs.' said Philippe Duchateau, Ph.D, Chief Scientific Officer of Cellectis.

Last May, during Cellectis' Innovation Days, the Company revealed its new .HEAL platform, a novel hematopoietic stem cell gene therapy that aims to address debilitating genetic diseases. .HEAL leverages the power of TALEN® gene editing technology to perform genome surgery, resulting in highly efficient and precise gene inactivation, insertion, and correction in hematopoietic stem cells (HSCs). Cellectis has announced ongoing programs targeting sickle cell disease, lysosomal storage disorders and primary immunodeficiencies.

Presentations details

Data presentation on preclinical development of a TALEN® based genome editing therapy for RAG1 deficiency

- Newborns with RAG1 SCID have extremely low levels of B and T cells and a severe risk of recurrent, life-threatening infections. RAG1 is an essential enzyme specifically and temporarily expressed in the early development of T and B cells, making traditional gene therapy approaches to treat the disease challenging due to the need for tight and precise spatio-temporal expression control.

- Previous attempts to treat the RAG1 deficiency via conventional gene therapy have produced unsatisfactory results.

- These results highlight the need for tight spatio-temporal control of RAG1 expression as key for functional restoration and the use of a gene editing tool.

- Using Cellectis' TALEN® technology and .HEAL, Professor Cathomen engineered HSCs with a corrected copy of RAG1 that replaced the existing, mutated copy of RAG1. The precise replacement of the mutated gene enabled the corrected RAG1 gene to be expressed at its natural timing and stage of cell development.

- 30% of gene correction was achieved within the long-term HSC population.

The presentation titled 'Preclinical development of a TALEN based genome editing therapy for RAG1 deficiency' will be made on October 21 (9-11AM CET) by Manuel Rhiel, Ph.D University of Freiburg, and can be found on the ESGCT website.

Presentation Details:

Data presentation on a preclinical development of a TALEN® based genome editing in T-cells for the treatment of Hyper-IgE- Syndrome

- Hyper IgE syndrome is a **rare primary immunodeficiency disease** that clinically manifests as skin inflammation and recurrent skin and lung infections. Mutations in the transcription factor STAT3 have been associated with Hyper IgE. Alternative splicing gives rise to two STAT3 isoforms, STAT3α and STAT3β that display distinct functions.

- The α/β ratio needs to be tightly regulated, which represents a major challenge for traditional gene therapy approaches.

- Cellectis has developed a strategy applicable in HSCs and T-cells to insert a corrected version of the STAT3 gene into the patient's genome to restore its functionality.

- In T-cells isolated from patients, 60% integration was achieved. More importantly, the α/β isoforms ratio was restored.

The presentation titled 'Preclinical development of a TALEN based genome editing in T cells for the treatment of Hyper-IgE-Syndrome' will be made on October 20 (9-11AM CET) by Viviane Dettmer, Ph.D, University of Freiburg, and can be found on the ESGCT website.

About Cellectis
Cellectis is a gene editing company, developing first of its kind therapeutic products. 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 21 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.
As part of its commitment to a cure, Cellectis remains dedicated to its goal of providing lifesaving UCART product candidates for multiple cancers including acute myeloid leukemia (AML), B-cell acute lymphoblastic leukemia (B-ALL) and multiple myeloma (MM). .HEAL is a new platform focusing on hemopoietic stem cells to treat blood disorders, immunodeficiencies and lysosomial storage diseases.
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
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Forward-looking Statements

This presentation 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 “at this time,” “anticipate,” “believe,” “expect,” “on track,” “plan,” “scheduled,” 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, include statements about our research and development projects and priorities, our pre-clinical project development efforts and the timing of our presentation of data. 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 as well as the duration and severity of the COVID-19 pandemic and governmental and regulatory measures implemented in response to the evolving situation. 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, 2020 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.