PRESS RELEASE

Cellectis Announces Release of Abstracts at ASH Showcasing Updated Preliminary Clinical Data from BALLI-01 Study and First Preclinical Data from TALGlobin01

November 4, 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, today announced the release of two abstracts, which were accepted for presentation at the 63rd American Society of Hematology (ASH) Annual Meeting taking place from December 11-14, 2021. The Company will present updated preliminary clinical data from its BALLI-01 clinical trial in patients with relapsed/refractory B-cell acute lymphoblastic leukemia (B-ALL), and preclinical data for TALGlobin01 for patients with HbSS Sickle Cell Disease (SCD).

"2021 has been a busy and productive year for Cellectis, with our proprietary clinical and preclinical programs making noteworthy progress. Cellectis is advancing one of the most robust allogeneic CAR-T pipelines and we are excited to share additional preliminary data from our BALLI-01 clinical trial, which is evaluating UCART22, in patients with relapsed and refractory B-cell acute lymphoblastic leukemia for whom there continues to be an urgent need for safe and effective treatments. We are also proud to disclose initial pre-clinical data from our .HEAL platform's product candidate, TALGlobin01, which demonstrates that TALEN® could be specific and efficient at correcting the mutated beta-globin gene, the underlying cause of sickle cell disease," said Carrie Brownstein, MD, Chief Medical Officer at Cellectis.

Cellectis Poster Presentations

BALLI-01 investigating UCART22 product candidate in R/R B-ALL

The abstract includes updated preliminary data from the Phase I, open-label, dose-escalation BALLI-01 study in patients with R/R B-ALL from the first cohort of patients who received UCART22 after FCA (fludarabine, cyclophosphamide and alemtuzumab) lymphodepletion. The data show that the addition of alemtuzumab to fludarabine and cyclophosphamide was well tolerated, deepened host T-cell depletion and promoted CAR-T cell expansion.

UCART22 is a novel and genetically modified allogeneic T-cell product manufactured from healthy donor cells. T-cells are transduced using a lentiviral vector to express the anti-CD22 chimeric antigen receptor (CAR) and are modified to disrupt the T-cell receptor alpha constant (*TRAC*) and *CD52* genes to minimize risk of graft-vs-host disease (GvHD) and to allow use of anti-CD52–directed drugs for lymphodepletion.

These data are encouraging and support the continued enrollment into the study. Additional data will be presented at the congress.

Poster Abstract Session:

Title: Preliminary Results from the Flu/Cy/Alemtuzumab Arm of the Phase I BALLI-01 Trial of UCART22, an Anti-CD22 Allogeneic CAR-T Cell Product, in Adult Patients with Relapsed or Refractory (R/R) CD22+ B-Cell Acute Lymphoblastic Leukemia (B-ALL)

Abstract: #1746

Presenter: Jain Nitin, MD, The University of Texas MD Anderson Cancer Center, Department of Leukemia, Houston, TX

Session Name: 704, cellular immunotherapies, Clinical Poster I

Date & Time & Location: December 11, 2021 5:30-7:30PM ET, Georgia World Congress Center, Hall B5

TALGlobin01; an autologous *ex vivo* TALEN®-edited CD34+ HSC therapy for the treatment of Sickle Cell Disease

Sickle cell disease (SCD) is a common inherited disease that stems from a single mutation in the *HBB* gene.

TALGlobin01 is an autologous cell-based gene therapy product designed to repair the mutated β-globin gene (*HBB*), and subsequently restore production of Hemoglobin A in HBSS sickle cell disease.

The data that will be presented are the first demonstration that TALEN®-based engineering could be used to correct the mutation in the beta-globin gene of homozygous sickle cell anemia patient-derived hematopoietic stem and progenitor cells. The data showed high level of hemoglobin A expression, reversion of sickling phenotype, the capacity of TALGlobin01 edited cells to engraft *in vivo*, and a low level of off-target cleavage. Collectively, the data demonstrate high efficiency and safety of TALEN® treatment in HSPCs and positioned it as the best-in-class gene editing technology for gene therapy product development.

Poster Abstract Session:

Title: Pre-clinical development of a highly efficient TALEN®-based correction of β-globin gene in patient-derived hematopoietic stem and progenitor cells (HSPCs) to treat sickle cell disease

Abstract: #1856

Presenter: Julien Valton, PhD, Vice President Gene Therapy, Cellectis

Session Name: 801, Gene therapies Poster I

Session Date & Time & Location: Dec 11, 2021, 5:30-7:30PM ET, Georgia World Congress Center, Hall B5

ASH abstracts are now available on www.hematology.org

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 lysosomal 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 “believe,” “expect,” “on track,” “plan,” “will,” “could”, “encouraging”, “designed to”, “intented to”, 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.