PRESS RELEASE

Cellectis Announces Positive Preliminary Clinical Data for UCART22 in ALL and UCART123 in AML

- *UCART22: anti-tumor activity observed in 60% (n=3) of patients at DL3 using FCA lymphodepletion*
- *UCART123: 25% (n=2) of patients at DL2 in the FCA arm achieved meaningful response; one patient experienced a durable minimal residual disease (MRD)-negative complete response that continues beyond 12 months*
- *BALLI-01 study (evaluating UCART22) now enrolling patients with product candidate manufactured in-house at DL2*
- *AMELI-01 study (evaluating UCART123) now enrolling patients in a two-dose regimen arm at DL2*

New York, NY – December 13, 2022 - 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 will host a live webcast reviewing updated clinical data on its Phase 1/2a BALLI-01 clinical trial (evaluating UCART22) and on its Phase 1 AMELI-01 clinical trial (evaluating UCART123) that were presented in an oral session on December 12, 2022 at the 64th Annual Meeting of the American Society of Hematology (ASH).

Preliminary Data from the BALLI-01 Clinical Study

BALLI-01 is a Phase 1/2a open-label dose-escalation trial evaluating the safety and clinical activity of UCART22 given at escalating dose levels after lymphodepletion (LD) with either fludarabine and cyclophosphamide (FC) or FC with alemtuzumab (FCA) in patients with relapsed or refractory acute lymphoblastic leukemia (r/r ALL). Alemtuzumab was added to the LD regimen to sustain host T-cell and Natural Killer (NK) cell depletion and to promote UCART22 cell expansion and persistence.

Compared to the last clinical update on BALLI-01 at ASH 2021, the webcast presented data from five additional patients who received UCART22 at dose level 3 (DL3) $5x10^6$ cells/kg after lymphodepletion with FCA. No dose limiting toxicities (DLTs), Grade 2 or higher cytokine release syndrome (CRS), immune effector cell-associated neurotoxicity syndrome (ICANS) or adverse events of special interest (AESI) were observed.

Evidence of UCART22 anti-tumor activity was observed in 60% (n=3) of the five patients at DL3 after lymphodepletion with FCA:

- A patient experienced a durable minimal residual disease (MRD) negative complete response with incomplete count recovery (CRi) that continues beyond 6 months.

- A patient experienced an MRD negative complete response (CR) that continues beyond Day 56.
- A patient experienced a morphologic leukemia-free state (MLFS) that continues beyond Day 84 (MRD-negative until Day 84; MRD-positive at Day 117).

All three of the responders failed multiple lines of prior therapy including chemotherapy, CD19-directed autologous CAR T cell therapy, and allogeneic stem cell transplant. Additionally, the patient with the MRD negative CR also failed both prior blinatumomab (a CD19-directed bi-specific antibody) and inotuzumab (a CD22-directed antibody-drug conjugate).

"These treatment responses in combination with the safety data are very encouraging for patients with r/r B-cell ALL who have limited, if any, treatment options, especially for those who have failed prior CD19 directed CAR T-cell therapy and allogeneic stem cell transplant', said Nitin Jain, M.D., The University of Texas MD Anderson Cancer Center, Department of Leukemia, and coordinating investigator for the BALLI-01 study.

Next Steps

Overall, these preliminary data support the continued administration of UCART22 after FCA lymphodepletion in patients with r/r ALL. The Company is now enrolling patients in BALLI-01 with product candidate manufactured fully in-house at DL2 after FCA lymphodepletion. The first patient has been dosed at dose level 2 (DL2) $1x10^6$ cells/kg. The next data set is expected to be released in 2023.

Preliminary Clinical Data from the AMELI-01 Study Presented at ASH 2022

AMELI-01 is a Phase 1 open-label dose-escalation trial evaluating the safety, tolerability, expansion and preliminary activity of UCART123 given at escalating dose levels after lymphodepletion (LD) with either fludarabine and cyclophosphamide (FC) or FC with alemtuzumab (FCA) in patients with relapsed or refractory acute myeloid leukemia (r/r AML).

The oral presentation reviewed preliminary data from patients who received UCART123 at one of the following dose levels: dose level 1 (DL1) $2.5x10^5$ cells/kg; dose level 2 (DL2) $6.25x10^5$ cells/kg; intermediate dose level 2 (DL2i) $1.5x10^6$ cells/kg; or dose level 3 (DL3) $3.30x10^6$ cells/kg after lymphodepletion with FC ([n=8], DL1 – DL3) or FCA ([n=9], DL2 & DL2i).

Preliminary Safety Data

The FCA LD regimen resulted in robust lymphodepletion for greater than 28 days in all patients. Seven out of nine patients demonstrated UCART123 expansion, with maximum concentration (C_{max}) ranging from 13,177 to 330,530 copies/µg DNA, an almost nine-fold increase compared with FC LD, and a significant increase in area under the curve $(AUC)^{(0\text{-}28\ days)}$ (p=0.04; FC 10.2±15.7 vs. FCA 34.9±28.4).

Cytokine release syndrome (CRS) occurred in eight patients in the FC arm and nine patients in the FCA arm. In the FC arm, one patient experienced Grade 3 immune effector cell-associated neurotoxicity syndrome (ICANS) and two patients experienced Grade 4 protocol-defined dose limiting toxicities (DLTs) secondary to CRS. In the FCA arm, two patients experienced Grade 5 DLTs secondary to CRS. Grade 4 toxicities are potentially life threatening and Grade 5 toxicities result in death.

Preliminary Efficacy Data

Evidence of UCART123 anti-tumor activity was observed in four patients out of fifteen at DL2 or above with best overall responses in the FCA arm. Two out of eight patients (25%) at DL2 with FCA arm achieved meaningful response:

- A patient who failed five prior lines of therapy experienced a durable minimal residual disease (MRD) negative complete response (CR) with full count recovery at Day 56 that continues beyond one year.
- A patient with stable disease achieved greater than 90% bone marrow blast reduction (60% to 5%) at Day 28.

“Exemplary activity was seen in a 64-year-old female with AML who had relapsed after allogeneic stem cell transplantation (allo-SCT) and has maintained a durable MRD-negative complete response for over one year without salvage donor lymphocyte infusion or second allo-SCT,” said David A. Sallman, M.D., Moffit Cancer Center, Department of Malignant Hematology, Tampa, FL. “Overall, these encouraging clinical data are a meaningful step forward for patients and support further enrollment into the study. This trial addresses a patient population with severe unmet medical need, where a successful CAR T-cell product candidate could be a major breakthrough.”

The preliminary data show that adding alemtuzumab to the FC LD regimen was associated with sustained lymphodepletion and significantly higher UCART123 cell expansion, which correlated with improved anti-tumor activity.

Next Steps: 2-Dose Regimen

Overall, these preliminary data support the continued administration of UCART123 after FCA lymphodepletion in patients with r/r AML. Based on observed UCART123 expansion patterns and cytokine profiles, pursuant to an amended protocol (as described below), a second dose of UCART123 will be given after 10-14 days to allow for additional UCART123 expansion and clinical activity without the use of additional lymphodepletion. The second expansion phase in the setting of reduced disease burden is expected to be safe and allow for clearance of residual disease.

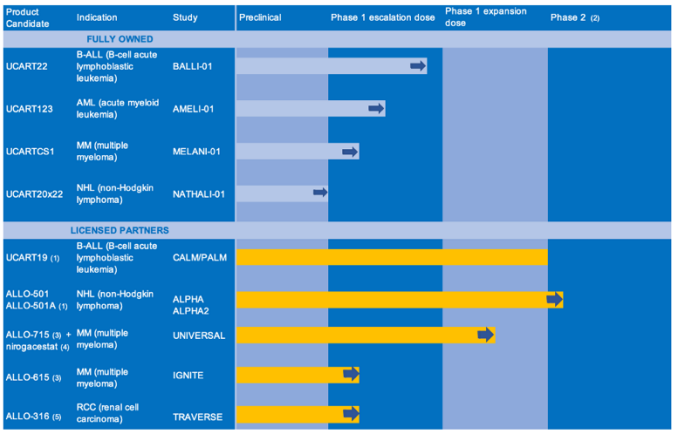
After a protocol-based pause in patient recruitment following a Grade 5 event related to CRS, the protocol treatment strategy has been modified and AMELI-01 has now commenced enrolling patients in the FCA 2-dose regimen arm at DL2, a dose that has already been administered and cleared for safety as a single dose. The arm incorporates the use of prophylactic tocilizumab, which is associated with reduced incidence of CRS.

A copy of the ASH oral presentation is available on Cellectis’ website.

“These clinically meaningful preliminary data from both the BALLI-01 and AMELI-01 studies are very encouraging for patients and for the future of allogeneic CART-cell therapy. Both ALL and AML are diseases with an urgent need for alternative treatment options for patients, and we are excited to be moving each of these studies forward,” said Dr. Mark Frattini, M.D., Ph.D., Chief Medical Officer at Cellectis. “We are now implementing a two-dose regimen arm for our AMELI-01 trial, as well as enrolling patients with in-house manufactured product for our BALLI-01 trial. We look forward to sharing future updates as they become available for both of these clinical studies.”

Pipeline Overview

The following chart highlights our and our licensee’s key product candidates:



(1) ALLO-501 and ALLO-501A are exclusively licensed to Servier and under a joint clinical development program between Servier and Allogene. The ALPHA and ALPHA2 studies targets Diffuse Large B-Cell Lymphoma (DLBCL) and Follicular Lymphoma (FL) indications, which are subtypes of NHL.

(2) Phase 3 may not be required if Phase 2 is registrational.

(3) ALLO-715 and ALLO-605 target BCMA which is a licensed target from Cellectis. Allogene has an exclusive license to the Cellectis technology for allogeneic products directed at the BCMA target. Allogene holds global development and commercial rights for this investigational candidate.

(4) Allogene is promoting this clinical trial in combination with SpringWorks Therapeutics.

(5) ALLO-316 targets CD70 which is a licensed target from Cellectis. Allogene has an exclusive license to the Cellectis technology for allogeneic products directed at the CD70 target. Allogene holds global development and commercial rights for this investigational candidate.

As of September 21, 2022, Servier has notified Allogene that Servier was discontinuing involvement in the development of CD-19-targeting allogeneic CAR T-cell products.

NATHALI-01 Study (evaluating UCART20x22):

Cellectis is enrolling patients at dose level 1 ($50x10^6$ cells) with a fludarabine, cyclophosphamide, and alemtuzumab lymphodepletion regimen in the NATHALI-01 Phase 1 dose-escalation clinical study of UCART20x22. UCART20x22 is Cellectis' first allogeneic dual CAR T-cell product candidate being developed for patients with relapsed or refractory non-Hodgkin lymphoma and fully designed, developed and manufactured in-house.

MELANI-01 Study (evaluating UCARTCS1):

Cellectis is enrolling patients at dose level 1 ($1.0x10^6$ cells/kg) with a fludarabine and cyclophosphamide (FC) lymphodepletion regimen in the MELANI-01 Phase 1 dose-escalation clinical study of UCARTCS1 for patients with relapsed or refractory multiple myeloma (MM).

ASH 2022 Poster Presentation on UCARTCS1, in Collaboration with Amsterdam UMC

On December 10, 2022, the Amsterdam University Medical Center (VUmc location), in collaboration with Cellectis, presented preclinical data in a poster session showcasing Cellectis' UCARTCS1 product candidate. These initial preclinical data demonstrated anti-tumor activity *in vitro* and *in vivo*, supporting the potential benefit of Cellectis' UCARTCS1 first in-human study MELANI-01.

Collectively, the preclinical data demonstrated that UCARTCS1 has potent anti-MM activity against MM cell lines and primary MM cells, as well as in a MM xenograft model. These preclinical data support the ongoing Phase 1 clinical trial with UCARTCS1 in heavily pretreated multiple myeloma patients.

A copy of the poster presentation is available here on Cellectis' website.

Webcast Information

The event will feature presentations by the management team and will be followed by a live Q&A. A replay of the webcast will be made available under the "Events and Webcasts" section on the Investor page of the Company's website: https://cellectis.com/en/investors/events-and-webcasts/

In this context, the listing of the Company's ordinary shares on Euronext Growth will be suspended on December 13, 2022 until the opening of trading of Cellectis' ADSs on the Nasdaq Global Market at 3:30 pm (Paris time)/ 9:30 a.m. (New York time).

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 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).

For more information, visit www.cellectis.com. Follow Cellectis on social media: @cellectis, LinkedIn and YouTube.

Forward-looking Statements and Legal Notices

Caution should be exercised when interpreting preliminary results and results relating to a small number of patients or individually presented case studies—such results should not be viewed as predictive of future results.

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," "can," "could," "expect," "intend,", "is designed to," "may," "might," "plan," "potential," "predict," "objective," "scheduled," "should," 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 preliminary results for the AMELI-01 and BALLI-01 trials and the objectives of such trials, which remain ongoing; the ability to progress our clinical trials and to present any additional data from these trials; clinical outcomes from our trials, which may materially change as more patient data becomes available, potential benefits of our UCART product candidates; and our manufacturing capabilities. 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 risk that initial, interim and preliminary data from clinical trials may change as more data becomes available, and that subsequent data may not confirm any early result; the risk of disruptions or delays in our clinical trials as a result of failures by third-parties on whom we rely or arising out of regulatory inquiries or delays; the risk of manufacturing delays or problems; the risk associated with increased competition and/or adequate enrollment to support our clinical trials; and the numerous other risks associated with biopharmaceutical product candidate

development. 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, which are available on the SEC's website at www.sec.gov, 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, please contact:

Media contacts:
Pascalyne Wilson, Director, Communications, +33 (0)7 76 99 14 33, media@cellectis.com
Margaret Gandolfo, Senior Manager, Communications, +1 (646) 628 0300

Investor Relation contact:
Arthur Stril, Chief Business Officer, +1 (347) 809 5980, investors@cellectis.com
Ashley R. Robinson, LifeSci Advisors, +1 617 430 7577