

COMMITMENT TO A CURE

Investor Presentation

December 2020



IMPORTANT INFORMATION

This presentation contains "forward-looking" statements that are based on our management's current expectations and assumptions and on information currently available to management.

Forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from those expressed or implied by the forward-looking statements.

Factors that may cause actual results to differ from those in any forward-looking statement, include the duration and severity of the COVID-19 pandemic and responsive measures; inconclusive clinical trial results or clinical trials failing to achieve one or more endpoints; early data not being repeated in ongoing or future clinical trials; failures to secure required regulatory approvals; disruptions from failures by third-parties on whom we rely in connection with our clinical trials; delays or negative determinations by regulatory authorities; changes or increases in oversight and regulation; increased competition; manufacturing delays problems; inability to achieve enrollment disagreements with our collaboration partners of collaboration partners to pursue product legal challenges or intellectual property disputes; disruptions to access to raw materials or starting material.

Further information on risks and factors that may affect company business and financial performance, is included in our annual report on form 20-F and the financial report (including the management report) for the year ended December 31, 2019 and subsequent filings Cellectis makes with the Securities and Exchange Commission from time to time.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in the forward-looking statements, even if new information becomes available in the future.

A shelf registration statement on Form F-3 (including a prospectus) relating to Cellectis' American Depositary Shares was filed with the Securities and Exchange Commission (the "SEC") and has become effective. Before purchasing American Depositary Shares in the offering, you should read the preliminary prospectus supplement and the accompanying prospectus, together with the documents incorporated by reference therein. You may obtain these documents for free by visiting EDGAR on the SEC's website at www.sec.gov. Alternatively, a copy of the preliminary prospectus supplement (and accompanying prospectus) relating to the offering may be obtained from Citigroup Global Markets Inc., c/o Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY 11717, or by telephone at (800) 831-9146; Jefferies LLC, 520 Madison Avenue, New York, NY 10022 or by telephone at (877) 821-7388 or by email at Prospectus_Department@Jefferies.com; or Barclays Capital Inc., c/o Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, NY 11717, or by telephone (888) 603-5847 or by email at Barclaysprospectus@broadridge.com.

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WRITING THE HISTORY OF ALLOGENEIC CAR T-CELLS

20 years

of expertise in gene editing

8 years

of experience in allogeneic

CAR-T manufacturing

6 clinical trials

ongoing as of 2020;
3 Cellectis-sponsored
4 partnered

INVENTORS / PIONEERS OF GENE EDITING & ALLOGENEIC CART-CELLS



In 2012...

Mission to develop allogeneic CAR T-cells begins

In 2015...

First-in-man compassionate use of an allogeneic CAR-T product candidate occurs



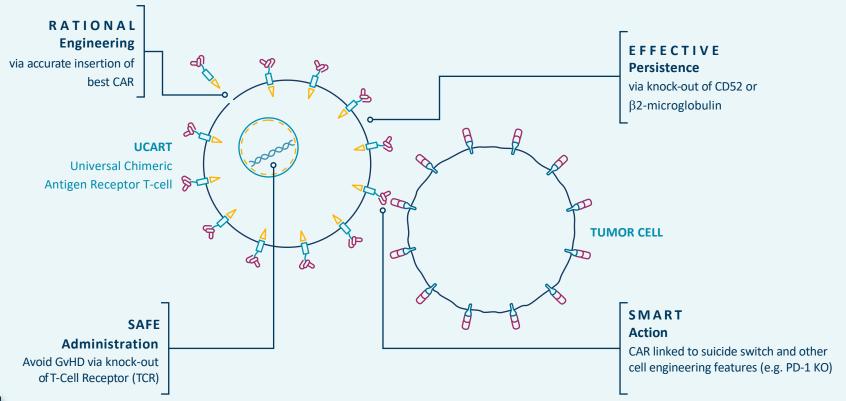
ADVANTAGES OF ALLOGENEIC VS. AUTOLOGOUS CAR-T

Manufacturing variability + several weeks before treatment is available **Autologous process:** CANCER **CANCER TREATMENT** MANUFACTURING INDIVIDUAL CAR-T **PATIENT APHERESIS DECISION OF A SINGLE THERAPY PATIENT PRODUCT** Allogeneic process: Consistent manufacturing + quality Immediate treatment TIME SAVED **COST EFFECTIVE HEALTHY DONOR SCALABLE** MASS PRODUCED MARKET ACCESS **APHERESIS MANUFACTURING ALLOGENEIC CAR-T CANCER TREATMENT OFF-THE-SHELF** OF 100+ **THERAPIES DECISION CAR-T THERAPY**



DOSES/BATCH

UCARTS - ALLOGENEIC CAR T-CELLS THROUGH PRECISION GENE EDITING



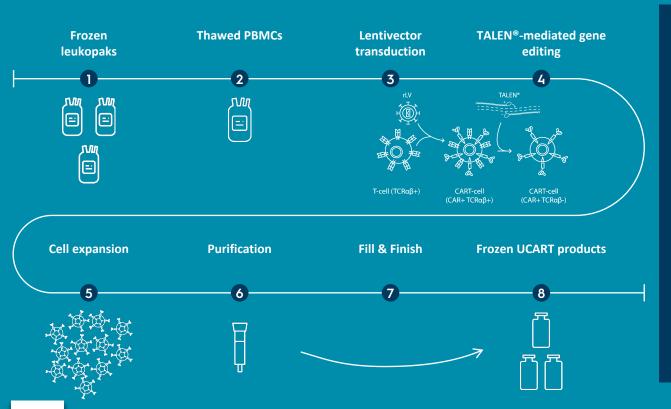


TALEN® GENE EDITING - ADVANTAGES

TALEN®:

Driven by protein/DNA interactions to work on potential off-Our nucleases act like DNA scissors to edit genes at precise target sites: site cleavage Releases DNA ends accessible to DNA repair mechanisms to perform gene insertions and corrections through homologous 16 RVDs recombination and gene inactivation through non-homologous end joining Over 20 years of building a strong patent portfolio with umbrella patents on gene editing A) Gene insertion or Knock-In (KI) B) Gene correction C) Gene inactivation or Knock-Out (KO) 96.8% Knock->65% Knock-In **Out Efficiency Efficiency** Requires homologous recombination

UCART MANUFACTURING



- → 8 years of experience in allogeneic CAR-T manufacturing
- → Validated gene editing technology for cell manufacturing
- → 4 UCART product candidates manufactured so far
- → Full QC system in place
- → 3 wholly controlled product candidates cleared for 3 clinical trials by the U.S. FDA



PARTNERSHIPS WITH INDUSTRY LEADERS

Up to \$3.2B in potential milestone payments plus royalties

Celebra Life EDITING LIFE	Partner	License	Geography	Most Advanced Targets	Status	Economics to Cellectis	
	** SERVIER V Allogene	Exclusive license to CD19- directed allogeneic CAR T- Cells	Ex-US	UCART19 (Anti-CD19)	Ph1	Up To \$410M In Development &	
		Sublicensed by Servier to CD19-directed allogeneic CAR T-Cells	US	ALLO-501 ALLO-501A (Anti-CD19)	Ph1	Sales Milestones + Low Double-Digit Royalties on Sales	
	- Allogene	Exclusive license to 15 allogeneic CAR T-Cell targets	Global	ALLO-715 (Anti-BCMA) ALLO-316 (Anti-CD70)	Ph1 Pre-IND	Up To \$2.8B In Development & Sales Milestones + High Single-Digit Royalties on Sales	
	IOVANCE BIOTHERAPEUTICS	Exclusive license agreement to use specific TALEN® technology to develop gene-edited TILs	Global	Undisclosed	Pre-IND	Undisclosed Development & Sales Milestones + Royalties on Sales	

PIPELINE: INNOVATIVE CANCER THERAPIES FOR UNMET NEEDS

Product	Disease	Study	Phase 1 Dose Escalation	Phase 1 Dose Expansion	Pivotal Phase 2
UCART123	ACUTE MYELOID LEUKEMIA	AMELI-01			
UCART22 CELECTS EDITING LIFE	ACUTE LYMPHOBLASTIC LEUKEMIA	BALLI-01			
UCARTCS1	MULTIPLE MYELOMA	MELANI-01			
UCART19 ³ ** SERVIER	ACUTE LYMPHOBLASTIC LEUKEMIA	CALM/PALL			
ALLO-501 Allogene	NON-HODGKIN'S LYMPHOMA ¹	ALPHA ALPHA ²			
ALLO-7154 Allogene	MULTIPLE MYELOMA	UNIVERSAL			

Cellectis and its partners are also working on a number of other preclinical targets



- 1 The ALPHA study targets Diffuse Large B-Cell Lymphoma (DLBCL) and Follicular Lymphoma (FL) indications, which are subtypes of NHL
- 2 We expect the pivotal phase to be the last clinical phase before commercialization
- 3 UCART19/ALLO-501 is exclusively licensed to Servier and under a joint clinical development program between Servier and Allogene
 4 BCMA is a licensed target from Cellectis. ALLO-715 utilizes TALEN® gene-editing technology pioneered and owned by Cellectis. Allogene has an exclusive license to

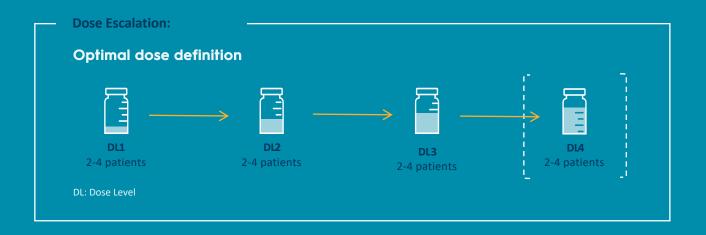
CLINICAL TRIAL: DESIGN OF PHASE I DOSE ESCALATION STUDIES

Primary Objectives:

Safety and Identification of Optimal Dose

Secondary Objectives:

Efficacy and Correlative Studies





ALLO-501*: CELLECTIS-LICENSED ALLOGENEIC CAR-T

PHASE 1 dose escalation in R/R Non-Hodgkin Lymphoma



Safety - Primary Objective

Graft vs Host Disease

ICANS (Immune Effector Cell-Associated

Neurotoxicity Syndrome)

Grade 3 Cytokine Release Syndrome

Grade 3 Infection

Grade 3 Infusion Reaction

Efficacy - Secondary Objective

63% Overall Response Rate

37% Complete Response Rate

75% ORR in CAR-T naïve patients (N=16)

44% Complete Response Rate

Re-dosing one patient with ALLO-501 and ALLO-647 resulted in an ongoing CR

The ALPHA trial utilizes ALLO-647, Allogene's anti-CD52 monoclonal antibody as a part of its lymphodepletion regimen

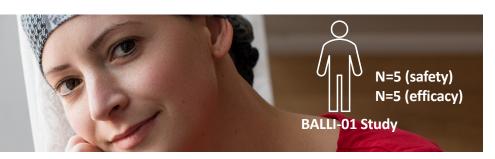


Data Source: ASCO 2020 Conference Presentation

The ALPHA study targets Diffuse Large B-Cell Lymphoma (DLBCL) and Follicular Lymphoma (FL) indications, which are subtypes of NHL.

UCART22: Initial Anti-Leukemic Activity in BALLI-01 Phase 1 in R/R B-ALL

PHASE 1 dose escalation in R/R Adult B-Acute Lymphoblastic Leukemia



Preliminary data from **5** patients who received UCART22 at DL1 or DL2 after FC lymphodepletion regimen

Median prior lines of therapy: 3

Median bone marrow blasts: 35% prior to lymphodepletion

Safety - Primary Objective-

Patients reported DLT, GvHD, AESI, ICANS, or Treatment related SAE¹

Efficacy - Secondary Objective

- Patients at DL1 achieved CRi² at Day 28; of which one patient attained CR at Day 42 and proceeded to HSCT after receiving *inotuzumab*.
- Patient at DL2 achieved bone marrow blast reduction (60% at screening to 13% at Day 28)

Enrollment into DL2 cohorts with FCA³ lymphodepletion regimen is ongoing



Data Source: ASH 2020 Conference Presentation

¹DLT: Dose Limiting Toxicity; GvHD: Graft versus Host Disease; AESI: adverse event of special interest; ICANS: immune effector cell-associated neurotoxicity syndrome; SAE: Serious Adverse Event

² CR: Complete Remission; CRi: Complete Remission with incomplete hematologic recovery

³ FCA: Fludarabine, Cyclophosphamide and Alemtuzumab

UCART22 IN ACUTE LYMPHOBLASTIC LEUKEMIA

ALL Incidence Rates & Survival Data

6.150

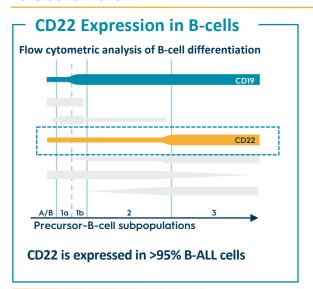
Estimated new cases of ALL in the US for 2020

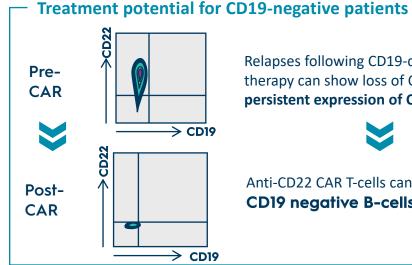


5-year OS in adults



Months median disease-free survival in R/R pediatric patients





Relapses following CD19-directed CAR T-cell therapy can show loss of CD19 antigen but persistent expression of CD22



Anti-CD22 CAR T-cells can induce remissions in CD19 negative B-cells











UCART123 IN ACUTE MYELOID LEUKEMIA

AML Incidence Rates & Survival Data

19.940

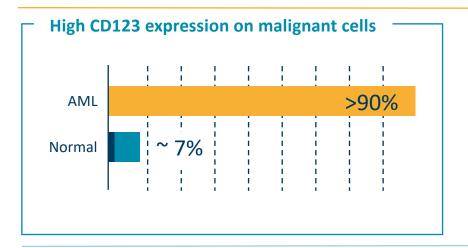
Estimated new cases of AML in the US for 2020

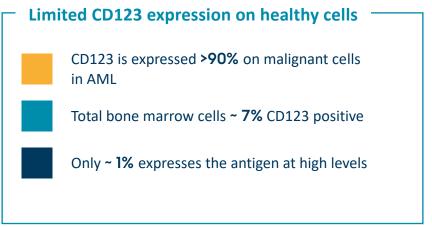


5-year OS in adults



5-year OS in adults >55 years old





Also expressed on BPDCN and Hodgkin's lymphoma











Northwestern

UCARTCSI IN MULTIPLE MYELOMA

MM Incidence Rates & Survival Data

32,270

Estimated new cases of MM in the US for 2020

43-83

Months is median OS for stages 2-3

50%

5-year OS in adults

High expression on malignant cells

>95%

expression in MM cells

→ CS1 expression is high and uniform on MM cells

Treatment alternative to BCMA-targeted therapies

- → Many BCMA-targeted cell therapies show relapses after 12-14 months of treatment
- → Elotuzumab, a CS1-targeting antibody, (in combination with lenalidomide and dexamethasone in R/R MM patients) shows:

5% CR rate and 45% partial remissions

Cellectis Trial Recruitment Sites



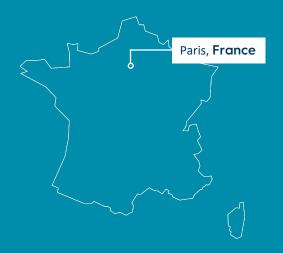






IN-HOUSE MANUFACTURING

Raw materials



Clinical & Commercial UCART Product Candidates



14,000 sq ft. facility

Production of clinical starting materials

Operations went live in 2020

82,000 sq ft. facility

Production of clinical & commercial UCART product candidates

Operational "go-live" targeted in **2021**



THE CELLECTIS GROUP



~64.7%* ownership



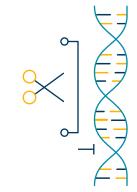
NASDAQ: CLLS

EURONEXT GROWTH: ALCLS

- ~\$278M** cash and cash equivalents as of September 30, 2020
- Expected to fund operations into 2022
- · Based in Paris, France, New York & Raleigh, USA

· Patient focused





Gene editing is the link

NASDAQ: CLXT

- \$30M cash and cash equivalents as of September 30, 2020 (before the \$15M Registered Direct Offering in October 2020)
- Cash Runway Extended into the Second Half of 2022
- Based in Minnesota, USA
- Consumer focused
- High value asset



ACHIEVED MILESTONES

Proprietary clinical programs

UCART22: Phase 1 in R/R ALL ongoing; data presented at ASH 2020

UCARTCS1: Phase 1 R/R MM ongoing

UCART123: Phase 1 for R/R AML ongoing

Partnered clinical programs

UCART19¹: Phase 1 in R/R ALL near completion

ALLO-501/ALLO-501A¹: Phase 1 in R/R NHL ongoing; data presented at ASCO 2020

ALLO-715²: Phase 1 in R/R MM ongoing; data presented at ASH 2020

Manufacturing

2 in-house GMP manufacturing plants:

Paris, France facility has started manufacturing of GMP starting material supply

Raleigh, North Carolina facility on track for GMP UCART manufacturing in 2021

EXPECTED FUTURE MILESTONES

UCART22: Enrollment and dosing ongoing at DL2 with Alemtuzumab+FC lymphodepletion; data update expected in 2021

UCARTCS1: Clinical hold lifted and study resumed; data update expected in 2021

UCART123: Enrollment and dosing ongoing at DL2 with Alemtuzumab+FC lymphodepletion; data update expected in 2021



THANK YOU

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