EDITING LIFE

Commitment to a Cure

Corporate Presentation
March 2022

NASDAQ: CLLS
EURONEXT GROWTH: ALCLS.PA

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 “designed to”, “anticipate,” “expected,” “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, including information provided or otherwise publicly reported by our licensed partners. Forward-looking statements about advancement, timing and progress of clinical trials (including with respect to patient enrollment and follow-up), the timing of our presentation of data and submission of regulatory filings, the adequacy of our supply of clinical vials, the operational capabilities at our manufacturing facilities, and the sufficiency of cash to fund operations.

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, 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.

Cellectis is a Clinical-stage Biotech

Using its Pioneering Gene-editing Platform

to Develop Life-saving Cell and Gene Therapies

Key Highlights

3 ongoing clinical trials

- 30+ patients dosed in Cellectis-sponsored trials

140+ patients dosed

- In 5 trials sponsored by Cellectis' licensed partners

$191M Cash runway into 2024*

- $191M in cash, cash equivalents, current assets and restricted cash. Restricted cash was $5M as of December 31, 2021*

GMP facilities operational since mid-2021

- End-to-end manufacturing autonomy (buffers, DNA, mRNA, vectors to the final UCART product candidate)

Meaningful Milestones Expected Over the Next 12 Months

- Clinical data updates
- New IND with innovative therapy

*excluding Calyxt, Inc.

Allogeneic CAR T-Cell Pipeline

	Product	Disease	Study	Preclinical	Phase 1 Dose Escalation	Phase 1 Dose Expansion	Pivotal Phase[2]	Upcoming Expected Milestones
Fully Owned	UCART22	Acute Lymphoblastic Leukemia	BALLI-01					DL3 with FCA preconditioning Start dosing in-house products
	UCART123	Acute Myeloid Leukemia	AMELI-01					DL2 and DL2i with FCA preconditioning
	UCARTCS1	Multiple Myeloma	MELANI-01					DL1 with FC preconditioning
	UCART20x22	B-cell Malignancies	*TBD*					IND filing, initiate phase 1
								Licensed to:
Licensed Partners	ALLO-501[1] ALLO-501A[1]	Non-Hodgkin's Lymphoma	ALPHA ALPHA2					SERVIER Allogene THERAPEUTICS *U.S. rights*
	ALLO-715[3] +/- nirogacestat[4]	Multiple Myeloma	UNIVERSAL					Allogene THERAPEUTICS
	ALLO-605[3]	Multiple Myeloma	IGNITE					
	ALLO-316[5]	Renal Cell Carcinoma	TRAVERSE					

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 target 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. ALLO-715 and ALLO-605 utilize TALEN® gene-editing technology pioneered and owned by 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 sponsored trial in combination with SpringWorks Therapeutics.
5 ALLO-316 targets CD70 which is a licensed target from Cellectis. ALLO-316 utilize TALEN® gene-editing technology pioneered and owned by 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.

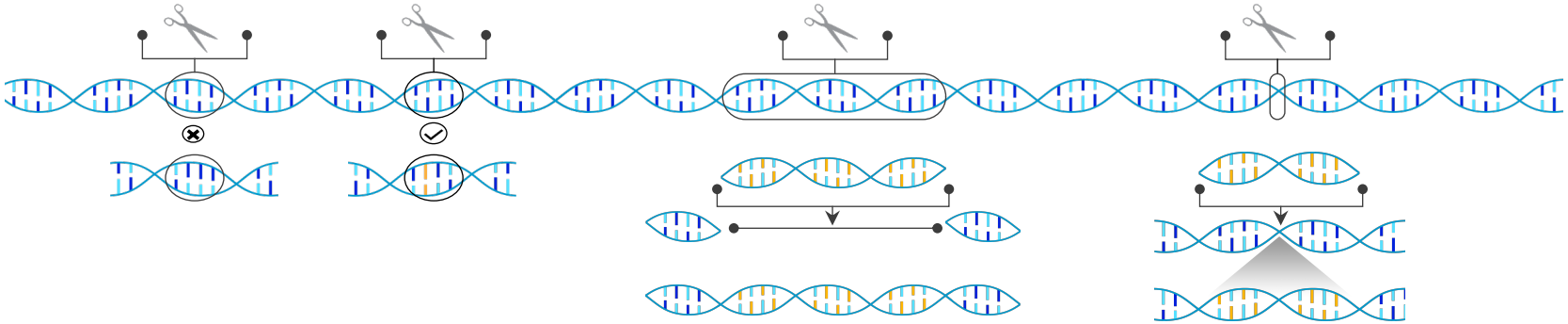
Diversified Partnerships with Industry Leaders

2014	SERVIER	Exclusive worldwide license to CD19-directed allogeneic CAR T-cells	CAR T CD19	**Up to $410M In Development & Sales Milestones** + Low Double-Digit Royalties on Sales
2015[1]	Allogene THERAPEUTICS	U.S. rights sublicensed to Allogene by Servier		
2014[1]	Allogene THERAPEUTICS	Exclusive worldwide license to 15 allogeneic CAR T-cell targets	CAR T BCMA CD70	**Up to $2.8B In Development & Sales Milestones** + High Single-Digit Royalties on Sales
2020	IOVANCE BIOTHERAPEUTICS	Research collaboration and exclusive worldwide license agreement to develop gene-edited TILs	TILs	**Undisclosed Financials**
2021	Cytovia Therapeutics	Worldwide research collaboration and license agreement to develop gene-edited iPSC-derived NK and CAR-NK cells	iPSC-derived NK	**Up to $805M of Development & Sales Milestones $20M Upfront Cash Payment or Equity Stake** + Single-Digit Royalties on Sales

1 Initially granted to Pfizer, Inc. In 2018, Pfizer and Allogene Therapeutics, Inc. entered into an asset contribution agreement pursuant to which Allogene purchased Pfizer's portfolio of assets related to allogeneic CAR T-cell therapy, including the CD19 US rights sublicensed by Servier, and the exclusive worldwide license to 15 allogeneic CAR-T targets.

Powerful and Comprehensive Gene Editing Platform

Gene Knockout | Gene Repair | Gene Replacement | Gene Insertion

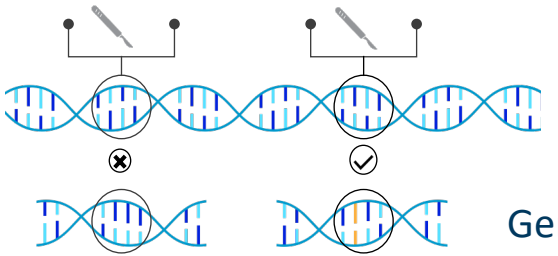


Nucleases

Experts in Gene Editing:

- ✓ 30+ years for Cellectis' founders
- ✓ 22 years doing gene editing
- ✓ 10 years developing TALEN®

Base editors



Gene Knockout | Gene Repair

Proprietary electroporation technology

Why TALEN®?

SAFE

Avoids unintended genetic modifications

PRECISE

Targets editing at the desired site (up to the base pair)

EFFICIENT

High rates of gene editing for Knock Outs and Knock Ins

Strong IP

Why TALEN®?

	TALEN®		CRISPR
MATURITY	In clinic since 2016 170+ patients dosed	>>	In clinic since 2018
PRECISION	Every 7 base pairs	>	Every 64 base pairs
GENOME OUTREACH	Euchromatin, heterochromatin	>>	Euchromatin only
RECOGNITION SITE	32 base pairs	>>	~20 base pairs
SAFETY	No chromotrypsis reported	>>	Chromotrypsis reported
VECTORIZATION	mRNA only	>	RNP
IP	Strong for CLLS	>	Scattered

RNP: Ribonucleoprotein; mRNA: Messenger RNA

Our Focus in 2022

Generate clinical data from our 3 ongoing trials

To support determination of recommended Phase 2 dose (RP2D) and lymphodepletion for:

- **UCART22 in r/r B-ALL patients**
- **UCART123 in r/r AML patients**
- **UCARTCS1 in r/r MM patients**

File IND & Initiate Phase 1 for

- **UCART20x22 in r/r NHL patients**

Manufacture (in-house) and release clinical batches of

- **UCART22**
- **UCART20x22**

Cellectis Allogeneic CAR T-Cell Programs

UCART Platform

Allogeneic CAR T-cell Therapies are the Future

Scalable manufacturing

Reduced cost:
1 batch = 100s doses

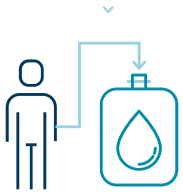
“Off-the-shelf” availability

1 Cancer Treatment Decision

2 Allogeneic UCART Therapy

Immediately available to patients

Efficiency & robustness



Potency and consistency may improve with healthy donor T-cells

Market access

Available to all patients irrespective of condition

Cellectis' Clinical-Stage Candidate UCART Products

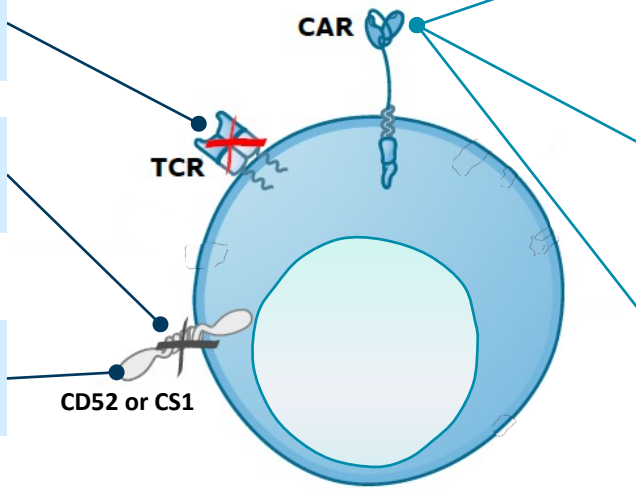
TALEN® Powered

TCRα KO
Against GvHD

CD52 KO
Resistance to alemtuzumab

OR

CS1 KO
Self-lymphodepleting



CAR123 — **Targeting CD123** For AML

CAR22 — **Targeting CD22** For ALL

CARCS1 — **Targeting CS1/SLAMF7** For MM

UCART22 – BALLI-01 Trial Design

Open Label Dose-escalation and Dose-expansion Study to Evaluate the Safety, Expansion, Persistence and Clinical Activity of UCART22 in Patients with Relapsed or Refractory CD22^{+} B-cell Acute Lymphoblastic Leukemia

Dose Escalation → **Determine MTD and/or RP2D** → **Dose Expansion** (LD regimen: FC or FCA)

Up to 30 pts; mTPI design; 2-4 pts/cohort

Up to 53 pts; binomial exact study design; LD regimen: FC or FCA

OBJECTIVES

PRIMARY/SECONDARY:

- Safety & tolerability
- MTD/RP2D
- Response (NCCN criteria; investigator assessed)

EXPLORATORY

- UCART22 expansion and persistence, VCN and chimerism in WB and BM
- Immune reconstitution

KEY ELIGIBILITY CRITERIA

- Patients aged 15 years to 70 years
- Adequate organ function
- ECOG PS ≤1
- B-ALL blast CD22 expression ≥70%
- Received ≥1 standard chemotherapy regimen and ≥1 salvage regimen

DOSE LEVELS

DL-1	*1 ×10^{4} cells/kg*
DL1	1 ×10^{5} cells/kg
DL2	1 ×10^{6} cells/kg
DL3	5 ×10^{6} cells/kg

F: 30 mg/m2/d x4d; C: 1 g/m2/d x3 d;
F: 30 mg/m2/d x3 d; C: 500 mg/m2/d x3 d A: 20 mg x3d

NCT04150497
MTD: maximum tolerated dose; RP2D: recommended phase 2 dose; LD: lymphodepletion; DL: dose level; FC: fludarabine + cyclophosphamide ;
FCA: fludarabine + cyclophosphamide + alemtuzumab; NCCN: National Comprehensive Cancer Network; VCN: Viral Copy Number; WB: White Blood; BM: Bone Marrow;
ALL: acute lymphoblastic leukemia

UCART22 Administration Shows Encouraging Tolerable Safety Profile

PATIENT CHARACTERISTICS (N=12)

Median age: 30 (20-61)

WHO classification:

- B-ALL with recurrent genetic abnormalities: 7 (58%);
- CRFL2 rearrangement: 4 (33%)

Median prior lines of therapy: 3 (2-6)

- Prior blinatumomab: 8 (73%)
- Prior inotuzumab: 5 (45%)
- Prior CD19 CART: 3 (27%)

SAFETY: FCA Cohorts (N=6)

- 0 dose limiting toxicity
- 0 ICANS (immune effector cell associated neurotoxicity)
- 0 severe UCART22-related TEAEs (treatment emergent adverse events)
- 3 patients with mild to moderate CRS (cytokine release syndrome)
- 1 patient with GII GvHD; skin only*

*not confirmed by biopsy ; in context of re-activation of prior allogeneic bone marrow donor

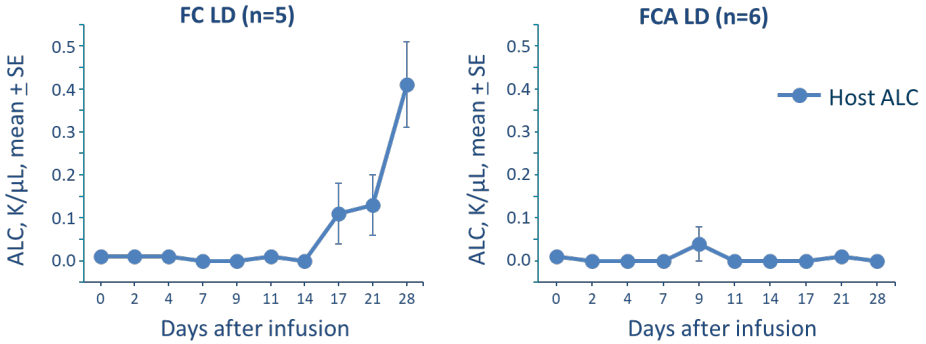
Data Source: ASH 2021 Conference Presentation

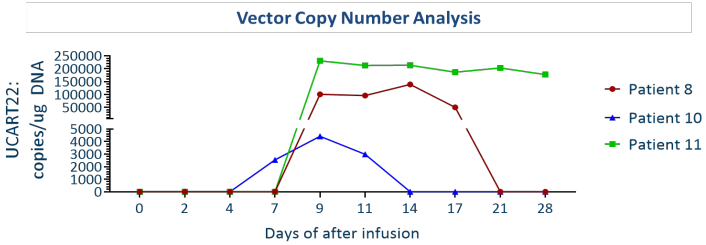
CRFL2: Cytokine Receptor-Like Factor 2 ; FCA: Fludarabine, Cyclophosphamide, Alemtuzumab ; ICANS: immune effector cell-associated neurotoxicity syndrome ; TEAE: Treatment Emergent Adverse Event
CRS: Cytokine Release Syndrome ; GvHD: Graft versus Host Disease
N=11 for calculating patients with prior therapy

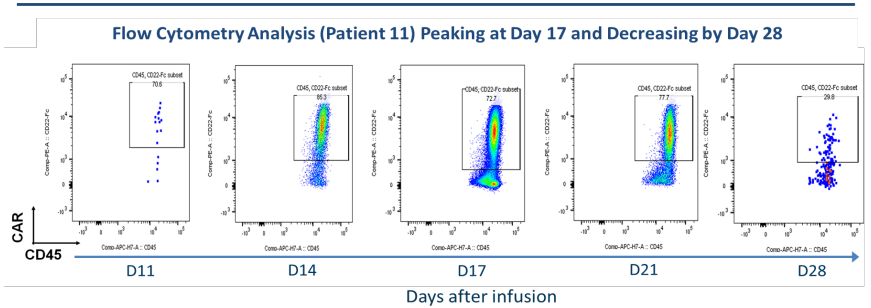
UCART22 Expansion Associated with Encouraging Anti-leukemic Activity

EFFICACY: FCA Cohorts (N=6)

- Host lymphocytes on average remained suppressed
- UCART22 expansion was observed and was associated with anti-leukemic activity
- 2/6 patients achieved blast reductions to < 5% by day 28
  - 1 pt in DL2: 0.4% BM blast
  - 1 pt in DL2i: 0% BM blast







Data Source: ASH 2021 Conference Presentation

FC: fludarabine + cyclophosphamide; FCA: fludarabine + cyclophosphamide + alemtuzumab; LD: lymphodepletion; DL2: Dose Level 2; DL2i: Intermediate Dose Level 2

UCARTCS1 – MELANI-01 Study Schema

Phase I, Open Label Dose-Escalation Study to Evaluate the Safety, Expansion, Persistence and Clinical Activity of UCARTCS1, Administered in Patients with Relapsed or Refractory Multiple Myeloma

OBJECTIVES

Primary and Secondary

- Safety and tolerability
- MTD and Efficacy

Exploratory Objectives

- CS1 expression on MM cells
- UCARTCS1 expansion and persistence
- Changes in serum biomarkers; immune cell reconstitution

KEY ELIGIBILITY CRITERIA

- Patients with confirmed MM (IMWG criteria) relapsed after prior MM therapy
- ECOG PS <2
- No prior investigational drug or CAR therapy targeting CS1
- Adequate organ function

DOSE LEVELS

DL-1	*3 ×10^5 cells/kg*
DL1	1 ×10^6 cells/kg
DL2	3 ×10^6 cells/kg
DL3	9 ×10^6 cells/kg

F: 30 mg/m2/d x 4d; C: 1 g/m2/d x3 d

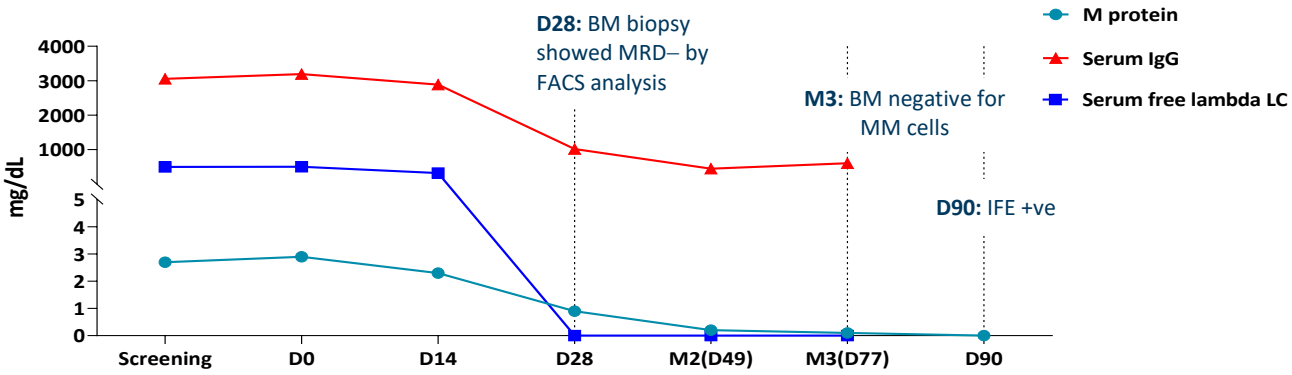
NCT04142619

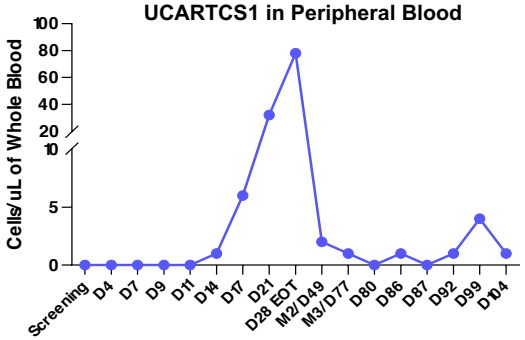
*Lymphodepletion: Fludarabine 30mg/m2/day, Day -5 to -2; Cyclophosphamide 1g/m^2/day, Day -4 to -2.

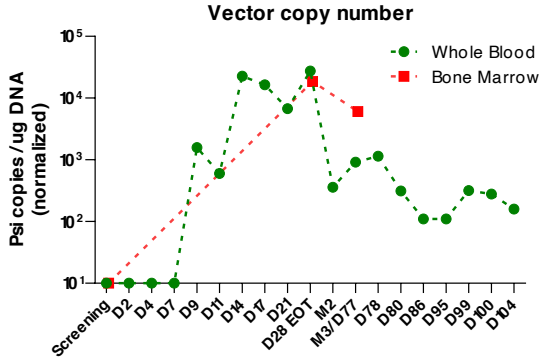
CS1, CD2 subset-1 (also CD319/SLAMF7); D, day; DL, dose level; ECOG PS, Eastern Cooperative Oncology Group performance status; IMWG, International Myeloma Working Group; MM, multiple myeloma; MTD, maximum tolerated dose; LD: lymphodepletion

Preliminary Data Validate CS1 as a Target for CAR T in Multiple Myeloma

DL1 patient
MRD-Neg VGPR







Data Source: ASGCT 2021 Conference Presentation

D, day; M, month; BM, bone marrow; MRD, minimal residual disease; MM, multiple myeloma; VGPR, very good partial response; DLI, Dose Level 1

UCART123 – AMELI-01 Trial Design

Phase I, Open Label Dose-escalation and Dose-expansion Study to Evaluate the Safety, Expansion, Persistence and Clinical Activity of UCART123 in Patients with Relapsed or Refractory Acute Myeloid Leukemia

Up to 28 pts; mTPI design; 2-4 pts/cohort

18-37 pts; Simon's two-stage design

OBJECTIVES

Primary and Secondary

- Safety & tolerability
- Establish MTD and identify RP2D
- Efficacy

Exploratory Objectives

- UCART123 expansion, trafficking, and persistence
- Profile cytokine, chemokine, growth factor, and C-reactive protein levels post-infusion

KEY ELIGIBILITY CRITERIA

- Patients with relapsed or primary refractory AML (>5% bone marrow blasts)
- Patients with CD123+ blast cells
- PS of ≤1 and adequate organ function
- Identified donor and transplant strategy prior to LD (dose-escalation)

DOSE LEVELS

DL-1	1.25×10^5 cells/kg
DL1	2.5×10^5 cells/kg
DL2	6.25×10^5 cells/kg
DL3	3.30×10^6 cells/kg
DL4	5.05×10^6 cells/kg

F: 30 mg/m2/d x 4d; C: 750 g/m2/d x 3d;
F: 30 mg/m2/d x 4d; C: 750 g/m2/d x3 d; A: 12 mg/d x4d

NCT04106076

MTD, maximum tolerated dose; RP2D, recommended phase 2 dose; DL, dose level; PS, performance status; mTPI, modified toxicity probability interval; LD, lymphodepletion; AML: acute myeloid leukemia

UCART20x22 – A Dual Allogeneic CAR T-cells for B-cell Malignancies

Why UCART20x22?

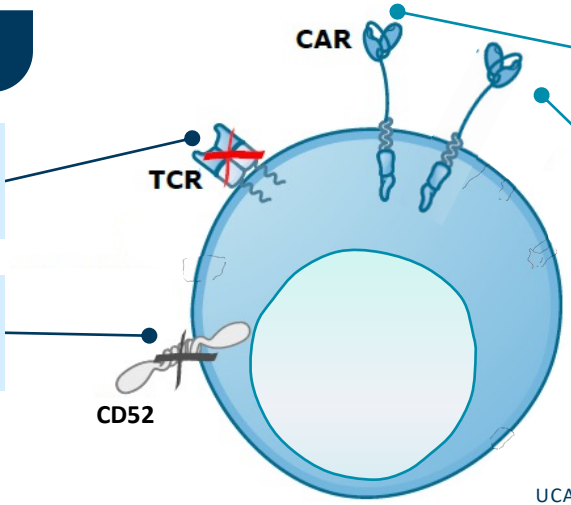
- **Strong alternative to CD19** (highly competitive/crowded)
- **CD22 and CD20 are validated targets** in B-cell malignancies
- Dual targeting designed **for better killing & to prevent target escape**
- **Strong *in vitro* and *in vivo* preclinical results** & fast to develop

TALEN® Powered

TCRα KO
Against GvHD

CD52 KO
Resistance to alemtuzumab

same as UCART22 and UCART123



CAR20 **Targeting CD20**

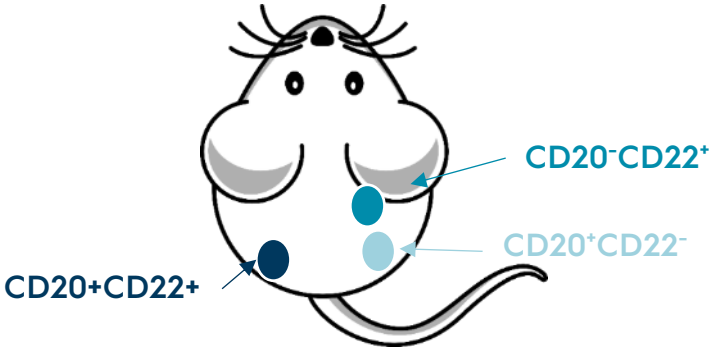
For B-cell malignancies

CAR22 **Targeting CD22**

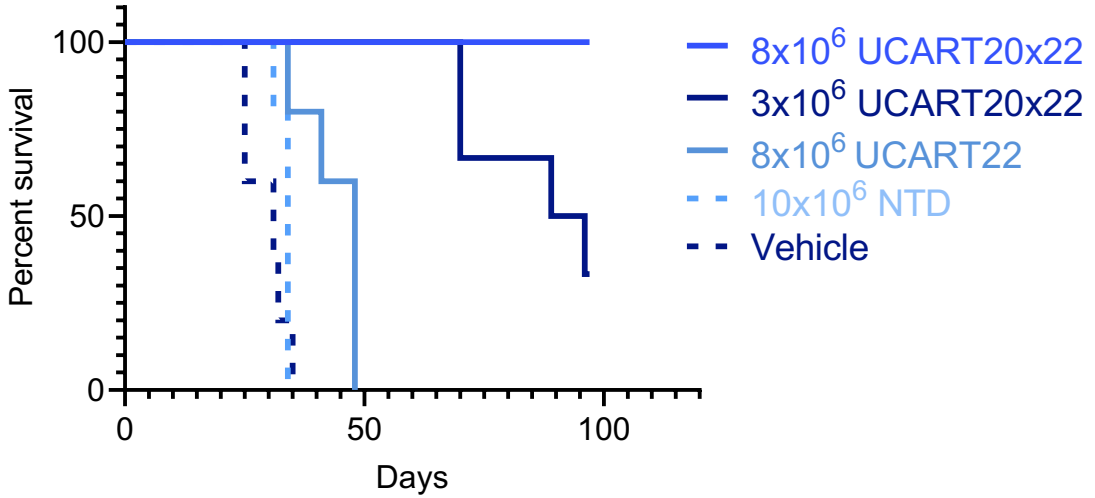
UCART20x22 product candidate is under pre-clinical development.

UCART20x22 – Efficient Activity *in Vivo* Against Multiple Target Combinations

Single mouse carrying subcutaneous lymphoma tumors expressing different antigen combinations



Efficient *in vivo* clearance of tumors expressing one or two antigens (CD20 and/or CD22) in a dose dependent manner, starting at low dose



IND filing in 2022

Cellectis' UCART Platform Takeaways

170+ patients administered UCART derived from Cellectis' technology

1. **GvHD:** TCRα KO results in safe, non-alloreactive UCART
2. **Engraftment:** CD52 KO + alemtuzumab provides a safe, effective & controllable therapeutic window
3. **Persistence:** Redosing feasible; encouraging results in enhanced activity in both NHL and ALL
4. **Safety:** Profile on par with approved autologous CAR T therapies
5. **Efficacy:** Anti-tumor activity consistent with autologous products

Cellectis Organization

From UCART Discovery to Patients' Bedside

Paris, France

HQ, PD/AD, Starting Materials

55,000 sq ft. facility

- ✓ Process & analytical development
- ✓ Raw materials manufacturing
- ✓ QC labs
- ✓ Warehouse
- ✓ Cryogenic Storage rooms

Raleigh, North Carolina

UCART – Clinical & potential for Commercial

82,000 sq ft. facility

- ✓ Cell therapy GMP manufacturing
- ✓ QC labs
- ✓ Warehouse
- ✓ Cryogenic Storage rooms

New York, New York

Innovation, Clinical Development

25,000 sq ft. facility

- ✓ Gene Editing platform – TALEN®
- ✓ I/O discovery platform
- ✓ Gene therapy discovery platform
- ✓ Clinical development

Cellectis 2022 Expected Milestones

UCART22

Enroll DL3 with FCA preconditioning and start dosing with products manufactured in-house

UCART123

Enroll DL2 and DL2i with FCA preconditioning

UCARTCS1

Enroll DL1 with FC preconditioning

UCART20x22

File IND and initiate Phase 1 trial in patients with R/R NHL

GMP FACILITIES

Release batches of UCART22 and UCART20x22

PARTNERS

Updates from licensed partners Servier, Allogene, Iovance and Cytovia

Key Takeaways – Why Cellectis?

Innovative Allogeneic CAR-T
Breaking Paradigms with Life-Saving Therapies

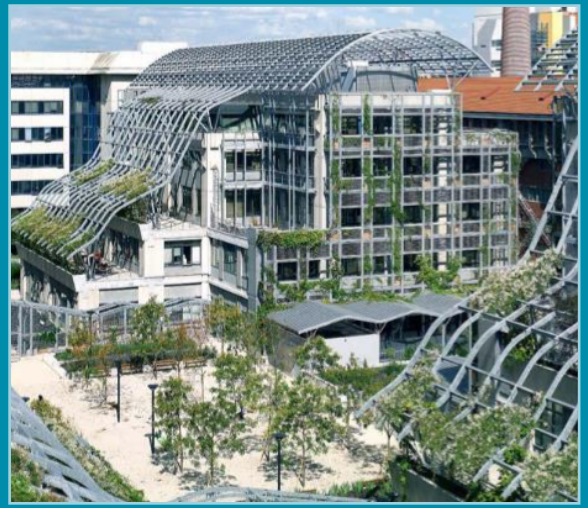
End-to-end In-house Manufacturing
Owning Manufacturing is Owning the Product

Best-In-Class Gene Editing Platform
Safe, Powerful & Comprehensive

Strong Partnerships
Diversified Indications Leading to Financial Upsides

THANK YOU

Reach us at: investors@cellectis.com



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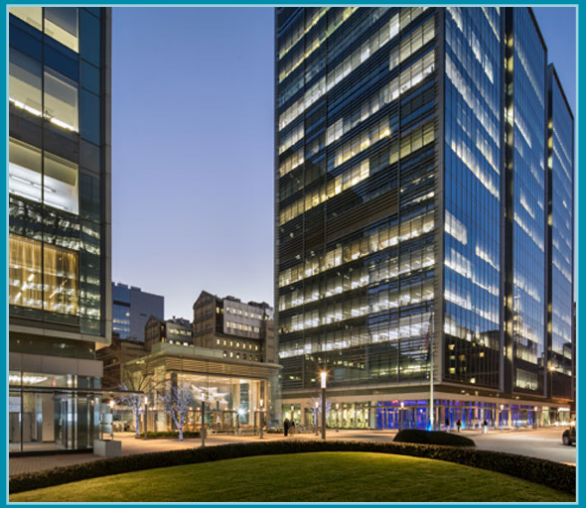

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