EDITING LIFE

Commitment to a Cure

Corporate Presentation

September 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 at a Glance

4 **Ongoing Clinical Trials**

40+ patients dosed in Cellectis-sponsored trials

Global GMP Facilities

- Operational since mid-2021
- End-to-end manufacturing autonomy

Near-Term Clinical Catalysts

- UCART clinical data updates

$135M

Cash Runway into 2024*

Diversified Partnerships with Industry Leaders

~200+ **patients dosed to date**

- Revenues > **$4B** in milestones + royalties
- **6 trials** sponsored by Cellectis' licensed partners

SERVIER

Allogene THERAPEUTICS

IOVANCE

Cytovia Therapeutics

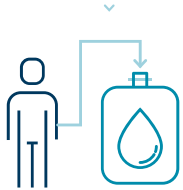
*Cash position, includes cash, cash equivalents and financial assets and restricted cash.

UCARTs are “Off-The-Shelf”

Scalable Manufacturing

Reduced cost
Scalable manufacturing:
1 batch = 100s doses

Robustness



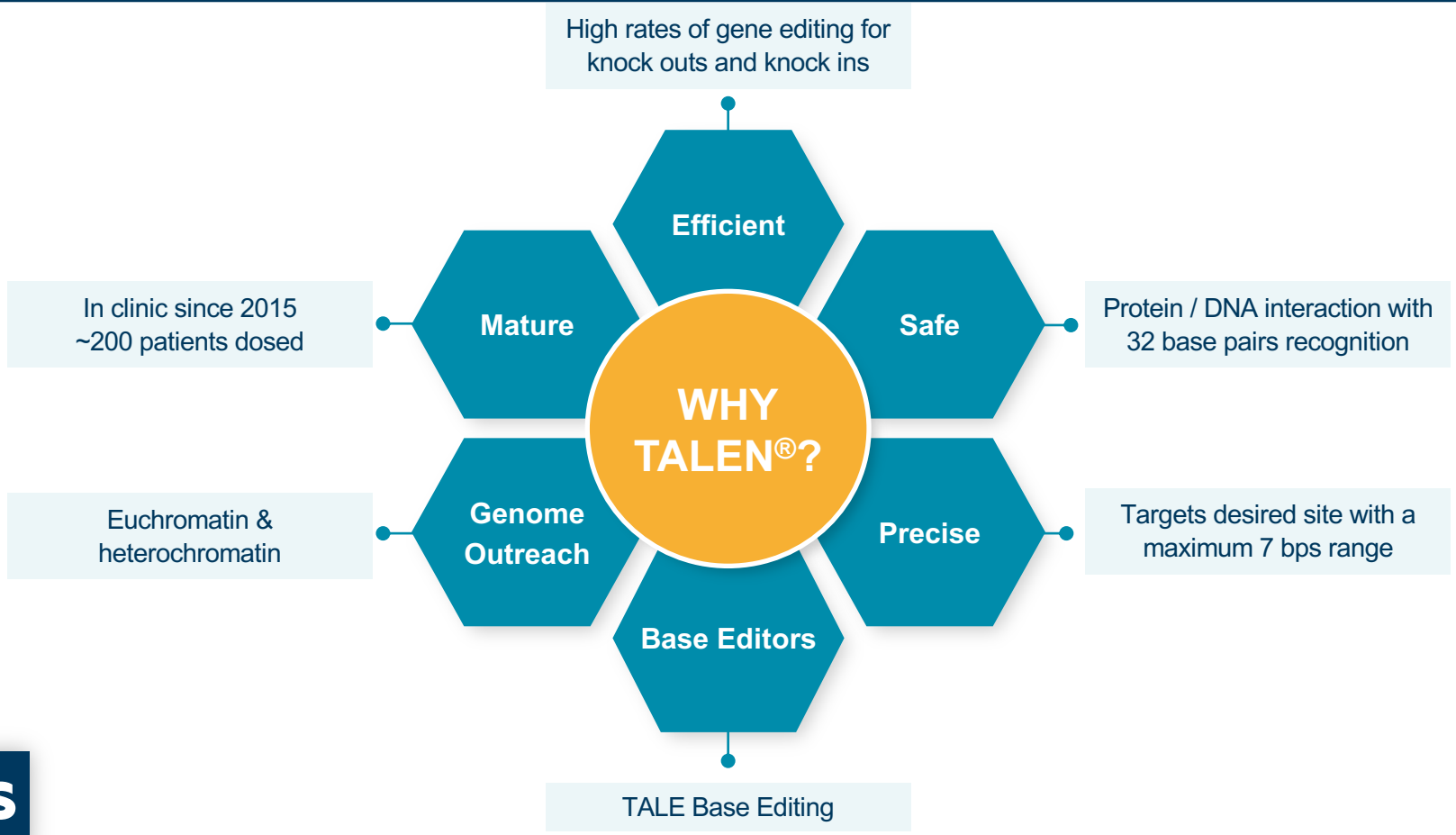
The goal is to provide potency and consistency to each patient

Market Access

Immediately available to all eligible patients

Control Production & Costs for Patients Safety and Profitability

Experts in Gene-Editing Use TALEN®



Cellectis' UCART Candidate Platform

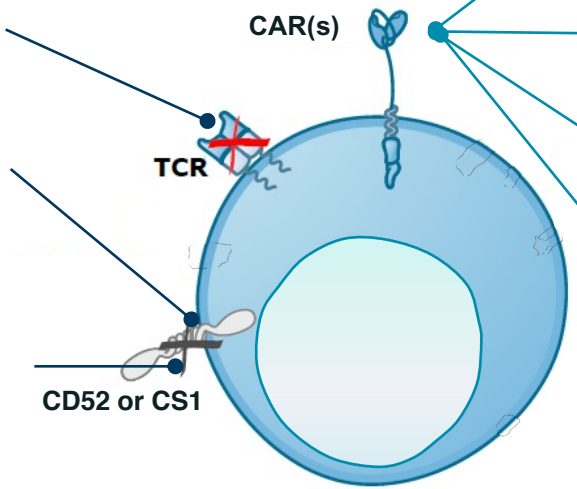
TALEN® Powered

TCRα KO
Against GvHD

CD52 KO
Resistance to alemtuzumab

or

CS1 KO
Self-lymphodepleting



CAR20 + CAR22	Targeting CD20 & CD22 For B-cell Malignancies
CAR22	Targeting CD22 For ALL
CAR123	Targeting CD123 For AML
CARCS1	Targeting CS1/SLAMF7 For MM

Differentiated Targets & Near-Term Catalysts

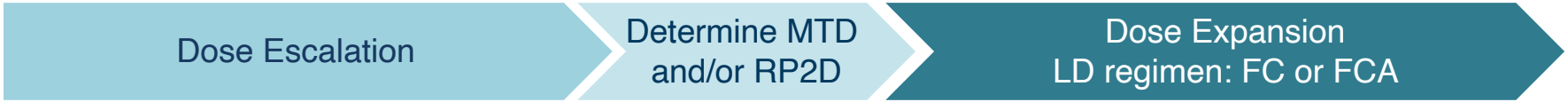
	Candidate / Target	Indication	Study	Preclinical	Phase 1 Dose Escalation	Phase 1 Dose Expansion	Pivotal Phase[2]	Upcoming Expected Milestones
Fully Owned	UCART22 CD22	ALL	BALLI-01 NCT04150497					Initiate dosing with in-house product
	UCART123 CD123	AML	AMELI-01 NCT03190278					DL2i with FCA preconditioning
	UCARTCS1 CS1/SLAMF7	MM	MELANI-01 NCT04142619					DL1 with FC preconditioning
	UCART20x22 Dual Target CD20, CD22	NHL	NatHaLi-01					Initiate Phase 1/2a with in-house product second half of 2022
								Licensed to:
Licensed Partners	ALLO-501[1] ALLO-501A[1] CD19	NHL	ALPHA NCT03939026 ALPHA2 NCT04416984					SERVIER, Allogene THERAPEUTICS U.S. rights
	ALLO-715[3] +/- nirogacestat[4] BCMA	MM	UNIVERSAL NCT04093595					Allogene THERAPEUTICS
	ALLO-605[3] BCMA	MM	IGNITE NCT05000450					
	ALLO-316[5] CD70	RCC	TRAVERSE NCT04696731					

ALL, Acute Lymphoblastic Leukemia; AML, Acute Myeloid Leukemia; MM, Multiple Myeloma; NHL, Non-Hodgkin's Lymphoma; RCC, Renal Cell Carcinoma.
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. 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.

Cellectis' UCART Platform

UCART22 – BALLI-01 Trial Design

Phase I/IIa, 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



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 and 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

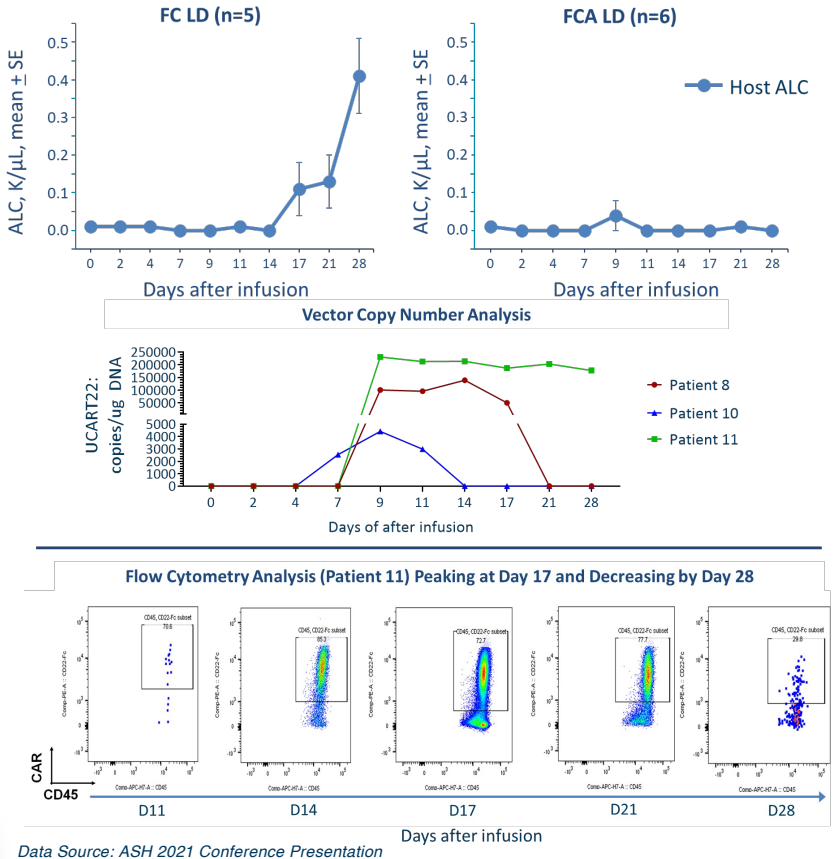
DL-1 1×10^4 cells/kg

- 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; F: Fludarabine; C: Cyclophosphamide; 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

Promising Anti-Leukemic Activity with UCART22



- Host lymphocytes on average remained suppressed
- 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
- FCA demonstrates improved lymphodepletion and UCART22 expansion with encouraging anti-leukemic activity

Data Source: ASH 2021 Conference Presentation

FC: Fludarabine + Cyclophosphamide; FCA: Fludarabine + Cyclophosphamide + Alemtuzumab; LD: Lymphodepletion; DL2: Dose Level 2; DL2i: Intermediate Dose Level 2

UCART22 Administration Shows Promising 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*

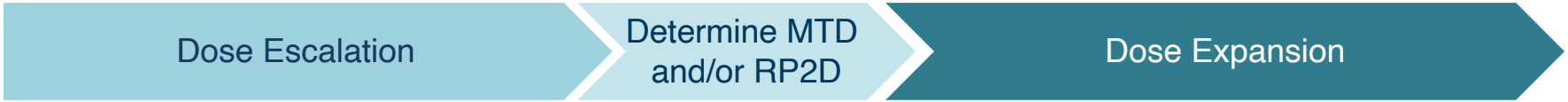
*not confirmed by biopsy; in context of re-activation of prior allogeneic bone marrow donor

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

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/Secondary:

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

Exploratory

- 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

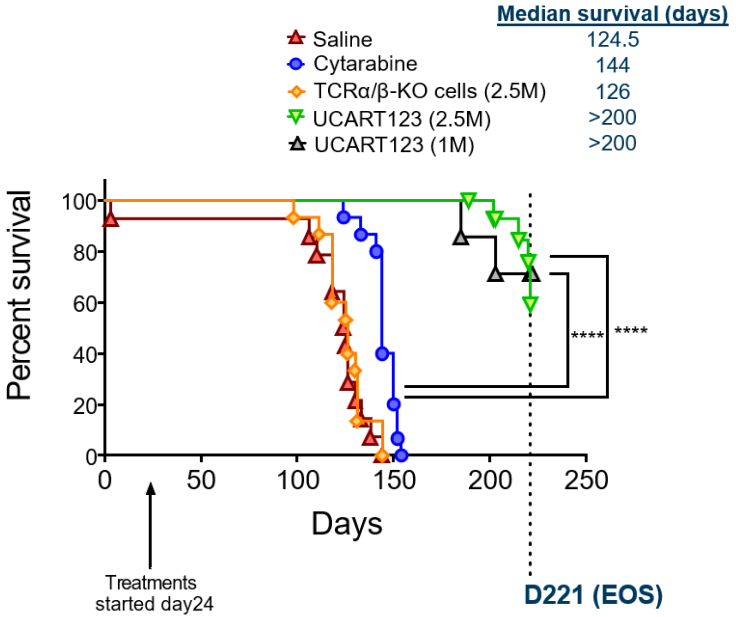
- DL-1 1.25×10^5 cells/kg
- DL1 2.5×10^5 cells/kg
- DL2 6.25×10^5 cells/kg
- DL3 3.30×10^6 cells/kg
- DL4 5.05×10^6 cells/kg

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 x 3d; A: 12 mg/d x4d

NCT04106076

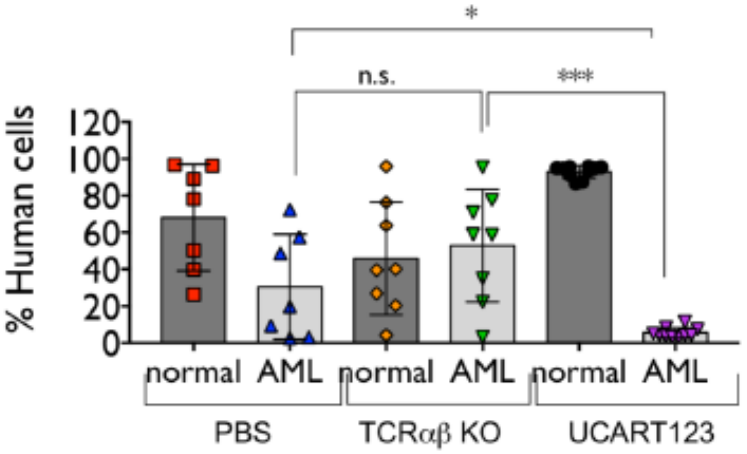
MTD, Maximum Tolerated Dose; RP2D, Recommended Phase 2 Dose; DL, Dose Level; PS, Performance Status; mTPI, modified Toxicity Probability Interval; LD, Lymphodepletion; AML: Acute Myeloid Leukemia

UCART123 Effectively Eliminates AML with no Major Impact on Normal Hematopoietic Progenitor Cells in AML PDX Model



UCART123 led to increased survival compared to standard AML treatment and controls

Bone Marrow evaluation at sacrifice

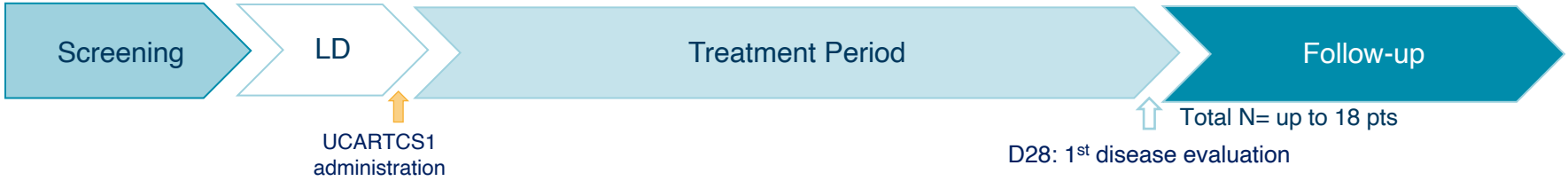


Leukemic cells are selectively eliminated by UCART123, while most of the normal BM human cells (expressing lower levels of CD123) are spared

Sugita *et al*. Nature Com., 2022

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/Secondary:

- Safety and tolerability
- MTD and Efficacy

Exploratory

- 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

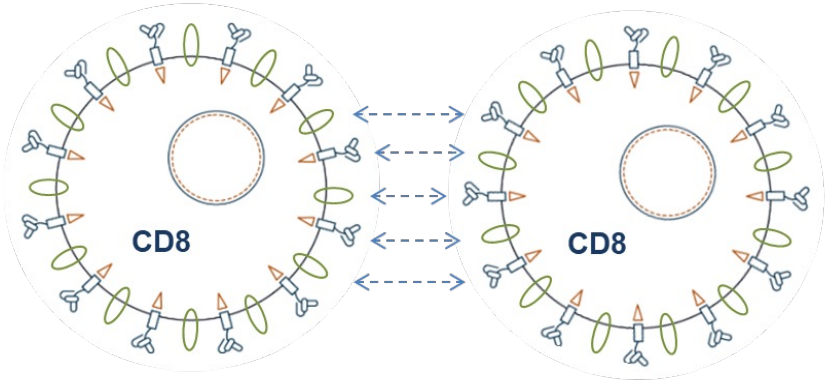
NCT04142619

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

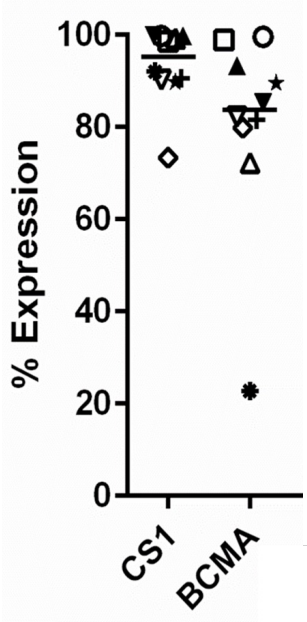
CS1, CD2 subset-1 (also CD319/SLAMF7); D, Day; DL, Dose Level; ECOG PS, Eastern Cooperative Oncology Group Performance Status; IMWG, International Myeloma Working Group; MM, Multiple Myeloma; MTD, Maximum Tolerated Dose; LD: Lymphodepletion

CS1 Is a Relevant Therapeutic Target in Multiple Myeloma

- CS1 (CD319, SLAMF7)
  - Highly and consistently expressed in MM cells
  - Not expressed in normal tissues or stem cells
- CS1 is expressed on CD8+ T-cells
  - TALEN®-mediated CS1 inactivation prevents cross T-cell reactivity and facilitates CAR T-cell production

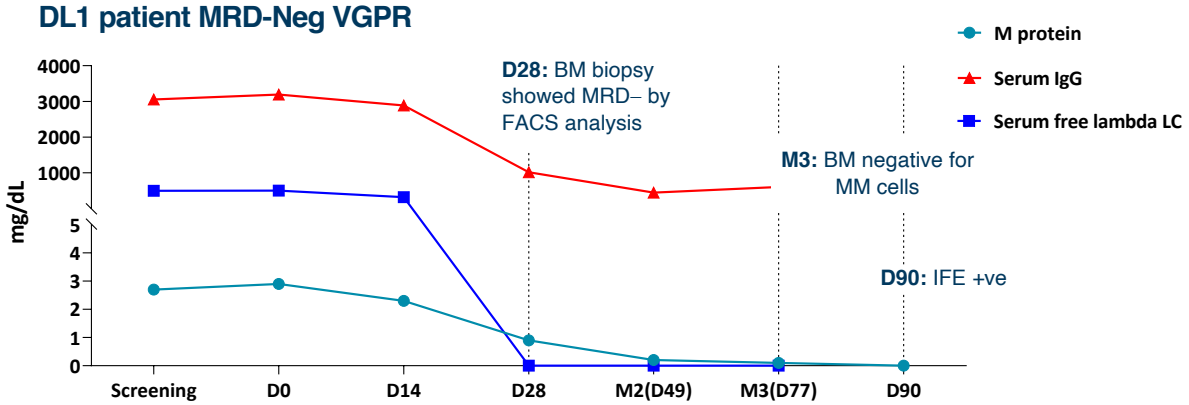


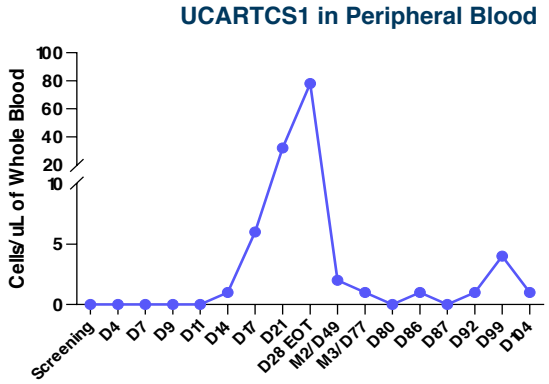
Target expression in MM patient samples*

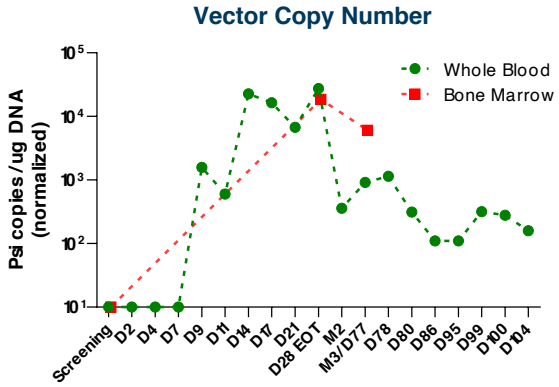


ASH 2017
Rohit Mathur, Sattva Neelapu

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







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

UCART20x22: Overcoming CAR T Challenges with Next Generation Dual Antigen Target

UCART20x22

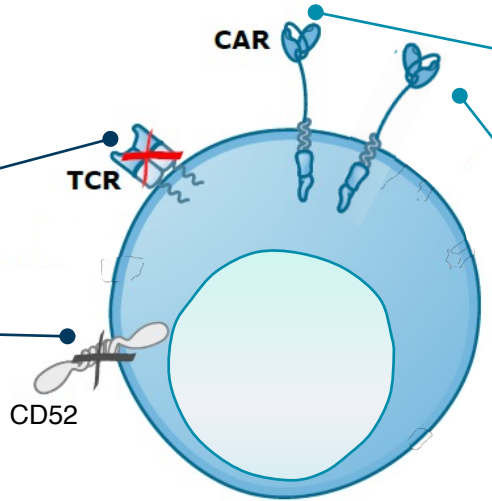
- Strong alternative to CD19 (highly competitive/crowded)
- CD22 and CD20 are validated targets in B-cell malignancies
- Dual targeting designed for better killing & prevent escape
- Strong *in vitro* and *in vivo* preclinical results & fast to develop

TALEN® Powered

TCRα KO
Against GvHD

CD52 KO
Resistance to alemtuzumab

same as in UCART22 and UCART123

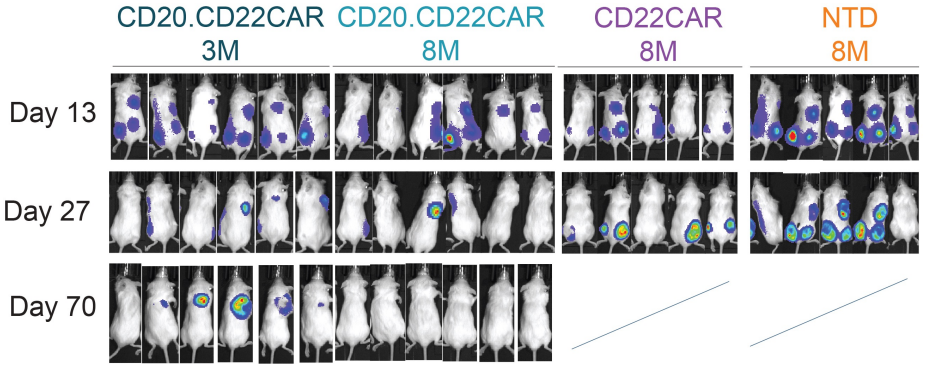


CAR20 Targeting CD20
For B-cell malignancies

CAR22 Targeting CD22

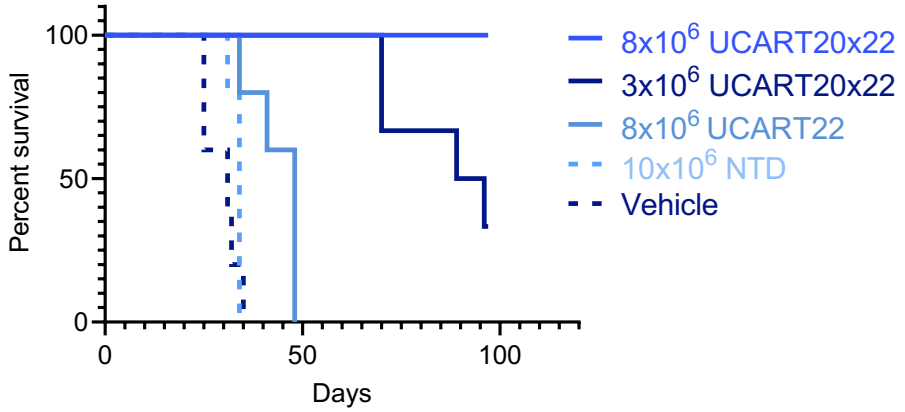
Phase1/2a of the NatHaLi-01 study (evaluating UCART20x22) expected to start second half of 2022

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



Subcutaneous lymphoma tumors expressing different antigen combinations in a single mouse

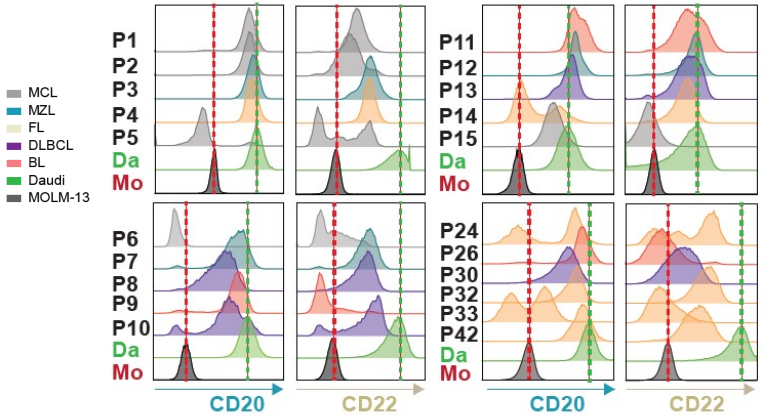
- $CD20^{-}CD22^{+}$
- $CD20^{+}CD22^{-}$
- $CD20^{+}CD22^{+}$



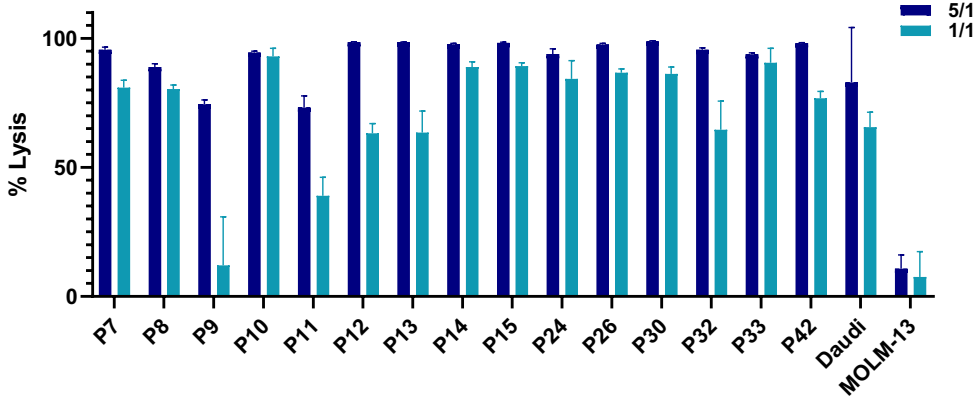
UCART20x22 efficiently eradicates *in vivo tumors expressing different CD20/CD22 antigen combinations* in a dose dependent manner

Efficient B-NHL Primary Sample Targeting with UCART20x22

Primary B-NHL tumors express CD20 and CD22



Cytotox activity against B-NHL samples



UCART20x22 efficiently targets primary B-NHL cells

UCART Platform Takeaways from ~200 Patients*

GvHD	TCRα KO results in safe, non-alloreactive UCART
Engraftment	CD52 KO + alemtuzumab provides a safe, effective & controllable therapeutic window
Persistence	Redosing feasible; encouraging pre-clinical activity in NHL and ALL
Safety	Profile on par with approved autologous CAR T therapies
Efficacy	Anti-tumor activity consistent with autologous products

* Includes fully owned and partnered assets

Expected Milestones over the Next 12 Months

UCART22 r/r B-ALL

Start dosing with in-house manufactured products

Determine RP2D and lymphodepletion

UCART123 r/r AML

Enroll at DL2i with FCA preconditioning

Determine RP2D and lymphodepletion

UCARTCS1 r/r MM

Enroll DL1 with FC preconditioning

Determine RP2D and lymphodepletion

UCART20x22 r/r NHL

Initiate Phase 1/2a with in-house products second half of 2022

Additional

Updates from licensed partners (Allogene, Iovance and Cytovia)

DL, dose level; DLi, intermediate dose level; FC, fludarabine + cyclophosphamide; FCA, fludarabine + cyclophosphamide + alemtuzumab; NHL, non-Hodgkin's lymphoma; RP2D, recommended Phase 2 dose; r/r, relapsed/refractory.

Discover, Create, Develop, Produce and Test




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

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

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, Precise & Efficient, Backed by Strong IP
Strong Partnerships	Anticipated Milestones, Diversified Financial Upsides

Thank You

Reach us at:
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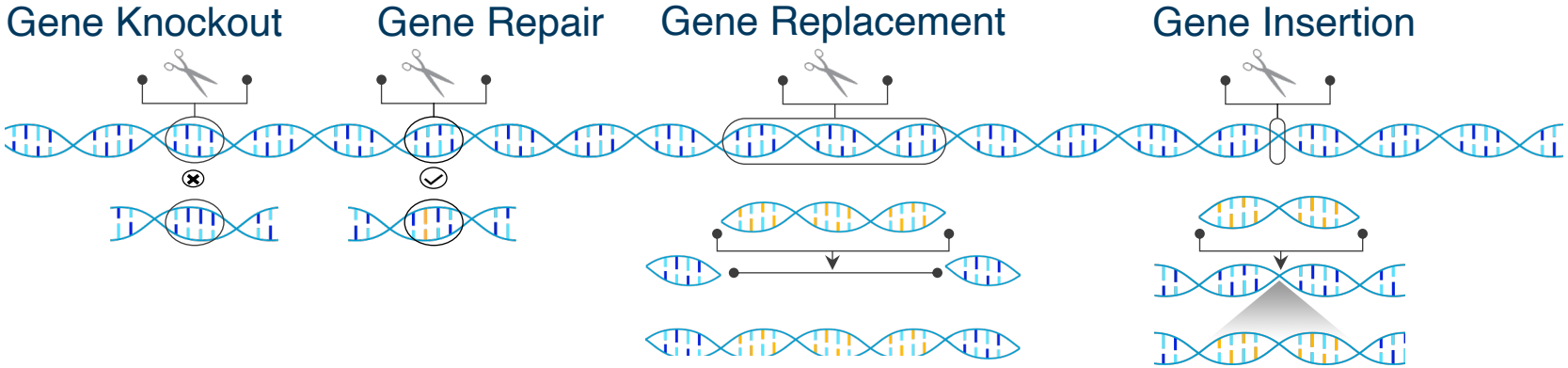
Appendix

Powerful and Comprehensive Gene Editing Platform

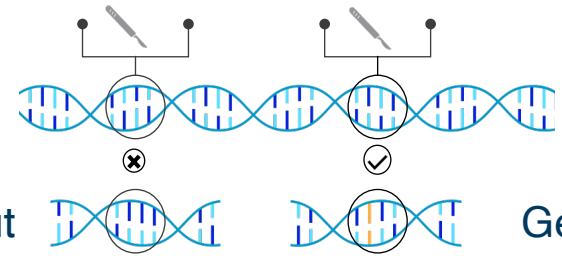


Nucleases

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®?

	Maturity	Genome Outreach	Recognition Site # base pairs	Chromotrypsis	Precision	Vectorization	IP
TALEN®	In clinic since 2015	Euchromatin & heterochromatin	32	Not reported	Every 7 base pairs	mRNA	Strong for CLLS
CRISPR	In clinic since 2018	Euchromatin only	~20	Yes	Every 64 base pairs	RNP	Scatter ed

RNP: Ribonucleoprotein; mRNA: Messenger RNA

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**	$20M Upfront Convertible Note Up to $805M in Development & Sales Milestones + 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.