EDITING LIFE

Commitment to a Cure

Corporate Presentation

January 2025

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,” "should," and “will,” "would," 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, the sufficiency of cash to fund operations, the potential benefit of our product candidates and technologies, the potential payments for which Cellectis is eligible under the agreements signed between Cellectis and each of its partners, including AstraZeneca, Servier, Allogene and Iovance and the financial position of Cellectis.

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.

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, 2023 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

2 **Clinical Trials***

75+ patients dosed in Cellectis-sponsored trials***

Global GMP Facilities

End-to-end manufacturing autonomy

Near-Term Clinical Catalysts

Multiple near-term UCART clinical data updates

$264M**

as of September 30, 2024

Cash Runway into 2027

Diversified Partnerships with Industry Leaders

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

AstraZeneca, SERVIER moved by you, Allogene THERAPEUTICS, IOVANCE, primera THERAPEUTICS

* On November 4, 2024, Cellectis decided to focus its current development efforts on the BALLI-01 and NATHALI-01 studies and therefore to deprioritize the development of UCART123.

** Cash position includes cash, cash equivalents, restricted cash and fixed-term deposits classified as current financial assets. Restricted cash was $5 million as of September 30, 2024. Fixed-term deposits classified as current financial assets was $100 million as of September 30, 2024.

*** Number of patients dosed in the Cellectis-sponsored trials BALLI-01, NATHALI-01 and AMELI-01.

Strategic Partnership with AstraZeneca

AstraZeneca

Cell & Gene Therapy R&D Collaboration

- Develop up to **10** novel products in **oncology, immunology and rare diseases**
- $25M upfront
- Milestones from $70M to $220M per product with tiered royalties
- AstraZeneca to cover Cellectis' research costs

Investment Agreements

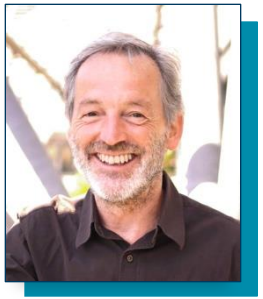
- **$220M equity investment** (subscribed for 16 million ordinary shares and 28 million convertible preferred shares at $5.0 per share)
- Immediately after the investment, AstraZeneca owned approximately 44% of the share capital and 30% of the voting rights of Cellectis

Note: AstraZeneca has nominated two directors to the board of directors of Cellectis. Further, certain business decisions are subject to AstraZeneca's approval. For more information on the agreements signed with AstraZeneca, please refer to the Annual Report filed on Form 20-F and the management report for the year ended December 31, 2023.

A Highly-Experienced Executive Committee

André Choulika, Ph.D.
Founder & CEO

Steven Doares, Ph.D.
SVP, US Manufacturing
& Site Head



Phillippe Duchateau, Ph.D.
Chief Scientific Officer

Adrian Kilcoyne M.D., MPH, MBA
Chief Medical Officer

Kyung Nam-Wortman
EVP, Chief Human
Resources Officer

Stephan Reynier
Chief Regulatory &
Pharmaceutical Compliance Officer

David Sourdive, Ph.D.
EVP CMC & Manufacturing
& Co-Founder

Arthur Stril
Interim Chief Financial Officer

Marie-Bleuenn Terrier
General Counsel

Cellectis' End-to-End Cell & Gene Therapy Platform

New York, NY

Platform Innovation & Clinical Development

25,000 sq ft. facility

- ✓ Gene editing platform – TALEN® and Base Editors
- ✓ CAR T discovery
- ✓ *In vivo* gene therapy discovery
- ✓ Clinical development

Paris, France

CMC Development, Starting Materials

55,000 sq ft. facility

- ✓ Process & analytical development
- ✓ Starting materials (plasmids, mRNA, viral vectors) manufacturing and QC testing site
- ✓ Cryogenic storage rooms

Raleigh, NC

UCART – Clinical & Intended Commercial Site

82,000 sq ft. facility

- ✓ UCART GMP manufacturing and QC labs
- ✓ Cryogenic storage rooms

Allogeneic CAR-T

***In Vivo* Gene Therapy**

Scalable Manufacturing

1 batch = 100s doses

Off-The-Shelf

Ensure immediate supply to meet patient demands

CAR: chimeric antigen receptor ; CMC: Chemistry Manufacturing and Controls; GMP: Good Manufacturing Practice ; QC: Quality Control

Differentiated Targets & Near-Term Catalysts

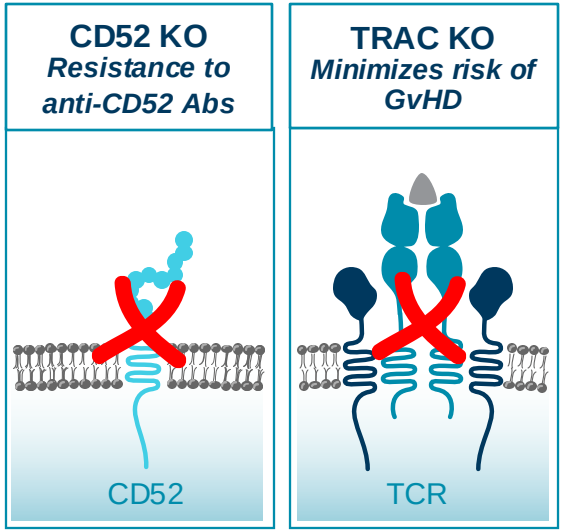
	Target	Indication	Study	Preclinical	Phase 1 Dose Escalation	Phase 1 Dose Expansion	Phase 2 Pivotal[1]	Upcoming expected milestone
Fully Owned	**UCART22** CD22	ALL	BALLI-01 NCT04150497					Phase 1 dataset & late-stage development strategy expected in 2025
Fully Owned	**UCART20x22** Dual Target CD20, CD22	NHL	NatHaLi-01 NCT05607420					Phase 1 dataset & late-stage development strategy expected in 2025
Licensed Partners	Cema-cel (ALLO-501A) CD19[2]	LBCL	ALPHA3 NTC06500273					SERVIER moved by you; Allogene THERAPEUTICS
Licensed Partners	ALLO-316[3] CD70	RCC	TRAVERSE NCT04696731					Allogene THERAPEUTICS
Licensed Partners	Allogeneic CAR T	Hematological malignancies						AstraZeneca
Licensed Partners	Allogeneic CAR T	Solid tumors						
Licensed Partners	*In vivo* gene therapy	Genetic disorder						
Licensed Partners	IOV-4001	Melanoma, NSCLC	IOV-GM1-201 NCT05361174					IOVANCE

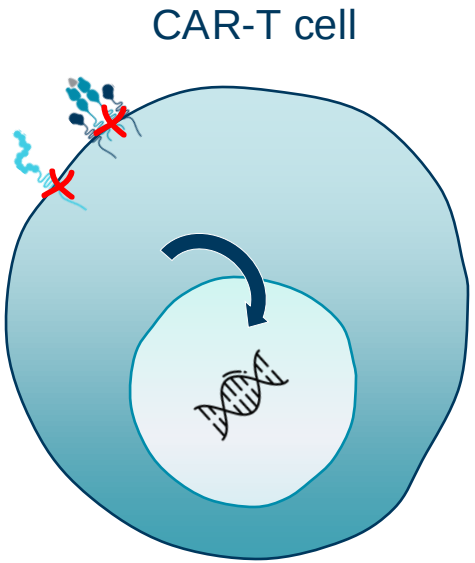
1. Phase 3 may not be required if Phase 2 is registrational.
2. cemacabtagene ansegedleucel has been developed under a collaboration agreement between Servier and Allogene based on an exclusive license granted by Cellectis to Servier. Servier grants to Allogene exclusive rights to cemacabtagene ansegedleucel in the U.S., EU and UK. The ALPHA3 study targets Large B-Cell Lymphoma (LBCL).
3. ALLO-316 utilizes TALEN® gene-editing technology pioneered and owned by Cellectis. Allogene has an exclusive license to the Cellectis technologies for allogeneic products directed at the CD70 target. Allogene holds global development and commercial rights for this investigational candidate.

ALL, Acute Lymphoblastic Leukemia; NHL, Non-Hodgkin's Lymphoma; LBCL, Large B-Cell Lymphoma; RCC, Renal Cell Carcinoma; NSCLC, Non-Small Cell Lung Cancer

Cellectis' UCART Platform

UCART are Designed with Cellectis' Differentiated Gene Editing Platform





TALEN® Powered Gene Editing:

PRECISE
Targets desired site with a maximum range of 7 base pairs

SAFE
Protein/DNA interaction with 32 base pairs recognition

EFFICIENT
High rates of gene editing for knock-outs and knock-ins

Abs: antibodies; CAR: chimeric antigen receptor; GvHD: Graft-versus-Host Disease; KO: Knock-Out; TCR: T-cell receptor; TRAC: T-cell receptor alpha constant

UCART22 and UCART20x22 Positioning

Post-CD19 CAR-T autologous treatments	CARGO THERAPEUTICS	CRG-022 CD22
	LEGEND BIOTECH	LCAR-AIO CD19/CD20/CD22
	Kite A GILEAD Company	KITE-363/ KITE-753 CD19/CD20
	J&J	C-CARO39 CD19/CD20
Post-CD19 CAR-T allogeneic treatments	Roche POSEIDA THERAPEUTICS	P-CD19CD20-ALLO1 CD19/CD20
	Sana Biotechnology	SC62 CD22

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- **CD20 & CD22:** Key targets validated in oncology and autoimmune diseases
- **UCART22:** First-in-class allogeneic CD22 CAR-T for ALL. Plan to advance into potential pivotal Phase 2 study
- **UCART20x22:** Unique allogeneic dual CAR-T product targeting CD20 & CD22
- **High unmet need** persists for effective r/r ALL and NHL treatments

ALL: acute lymphoblastic leukemia; NHL: Non Hodgkin Lymphoma ; r/r: Relapsed or Refractory

UCART22 Study Design

Key inclusion criteria:

- Age 15–70 years, adequate organ function, ECOG PS ≤1
- B-ALL blast CD22 expression ≥70%
- Received ≥1 standard chemotherapy regimen and 1 salvage regimen

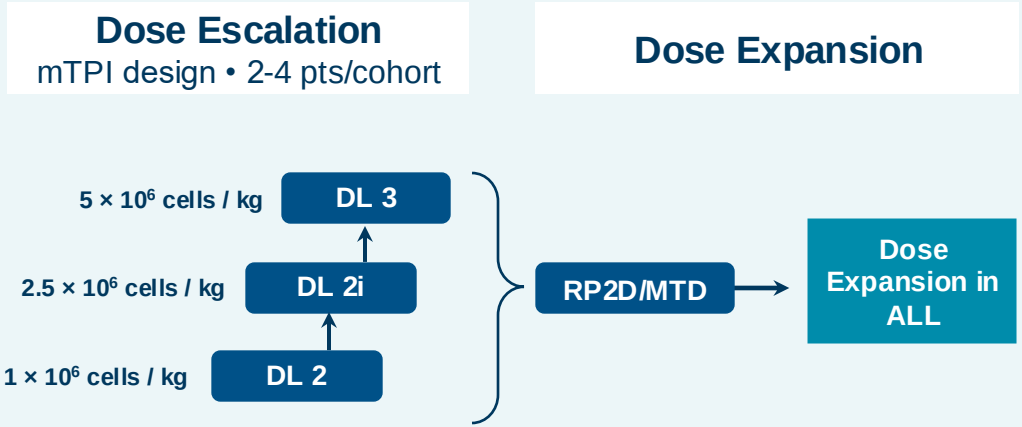
Primary objective:

- Safety, tolerability, & MTD of UCART22

Additional objectives:

- Investigator-assessed response
- UCART22 expansion in PB and BM
- Immune reconstitution

Administering UCART22-P2 (cells manufactured by Cellectis) with FCA lymphodepletion:



FCA LD regimen:

- **Fludarabine** 30 mg/m^2 × 3d
- **Cyclophosphamide** 0.5 g/m^2 × 3d
- **Alemtuzumab** 20 mg/d × 3d

B-ALL, B-cell acute lymphoblastic leukemia; BM, bone marrow; DL, dose level; d, days; ECOG PS, Eastern Cooperative Oncology Group performance status; FCA, fludarabine + cyclophosphamide + alemtuzumab; LD, lymphodepletion; MTD, maximum tolerated dose; mTPI, modified Toxicity Probability Interval; PB, peripheral blood; pts, patients.

Outcomes of UCART22 Patients Treated at DL2

3 patients were enrolled into the first UCART22 cohort at DL2:

Patient 1

MRD negative MLFS

17-year old
- Ph-negative B-ALL
- Hypodiploid karyotype
- *TP53* mutation
- 40% Blasts
- Previous Treatments:
  - Multiagent chemotherapy
  - Blinatumomab
  - Inotuzumab
  - Venetoclax
  - ASCT
  - Autologous CD19 CAR-T x 2

Patient 2

MRD negative CR

68-year old
- Ph-negative B-ALL
- CD19 Low disease
- 80% Blasts
- Previous Treatments:
  - Multiagent chemotherapy
  - Blinatumomab
  - Inotuzumab

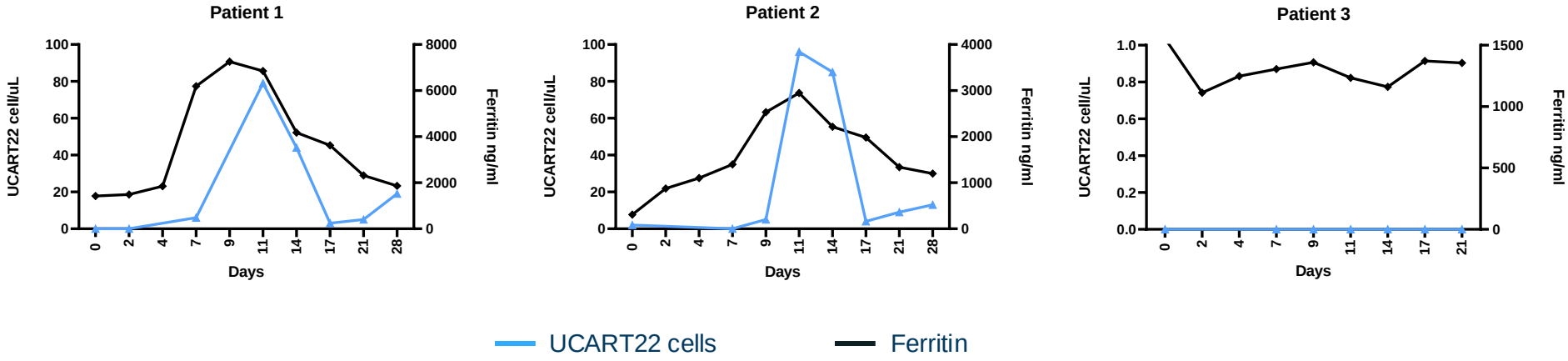
Patient 3

Refractory

27-year old
- B-ALL with ABL2 fusion
- 84% Blasts
- Previous Treatments:
  - Multiagent chemotherapy
  - Blinatumomab
  - Inotuzumab
  - TKI
  - Autologous CD19 CAR-T

ASCT: allogeneic stem cells transplantation; ALL: acute lymphoblastic leukemia; CART: chimeric antigen receptor T-cell therapy; CR: Complete Response; DL2: Dose Level 2; MLFS: Morphologic Leukemia-Free State; MRD: Minimal Residual Disease; TKI: tyrosine kinase inhibitor

Expansion of UCART22 Cells in Peripheral Blood Correlates with an Increase in Serum Ferritin Levels



UCART22 expansion was observed by flow cytometry in the peripheral blood in patients 1 and 2, both at D11:

- ~80 cells/µL in patient 1
- ~100 cells/µL in patient 2

No UCART22 expansion in patient 3, and ferritin levels mostly unchanged during the 21 days following UCART22 administration

Summary of UCART22 Patients Treated at DL2

Safety

- No dose-limiting toxicities (DLT)
- No immune effector cell-associated neurotoxicity syndrome (ICANS)
- No GvHD
- CRS in 2/3 (67%) patients with one G1 that resolved without treatment and one G2 that resolved after tocilizumab x1
- Patient 1 had a G5 sepsis SAE at D40 considered related to UCART22 and FCA LD

Efficacy

- Responses were assessed beginning on D28
- 2/3 patients (67%) treated at DL2 with UCART22 responded:
  - Patient 1 had 40% BM blasts at screening and achieved an **MRD negative MLFS** (by flow cytometry and clonoSEQ at 10^{-4}) up to D40
  - Patient 2 had 80% BM blasts at screening and achieved an **MRD negative CR** (by clonoSEQ at 10^{-4}) lasting over 84 days after UCART22 infusion
  - Patient 3 had 84% BM blasts at screening and was refractory to treatment

BM: Bone Marrow, CR: Complete Response, CRS: Cytokine Release Syndrome, D: Day, DL2: Dose Level 2, FCA: Fludarabine, Cyclophosphamide and Alemtuzumab, G: Grade, LD: Lymphodepletion, GvHD: Graft Versus Host Disease; MRD: Minimal Residual Disease, MLFS: Morphologic Leukemia-Free State, SAE: Serious Adverse Event

UCART20x22 Study Design

Key inclusion criteria:

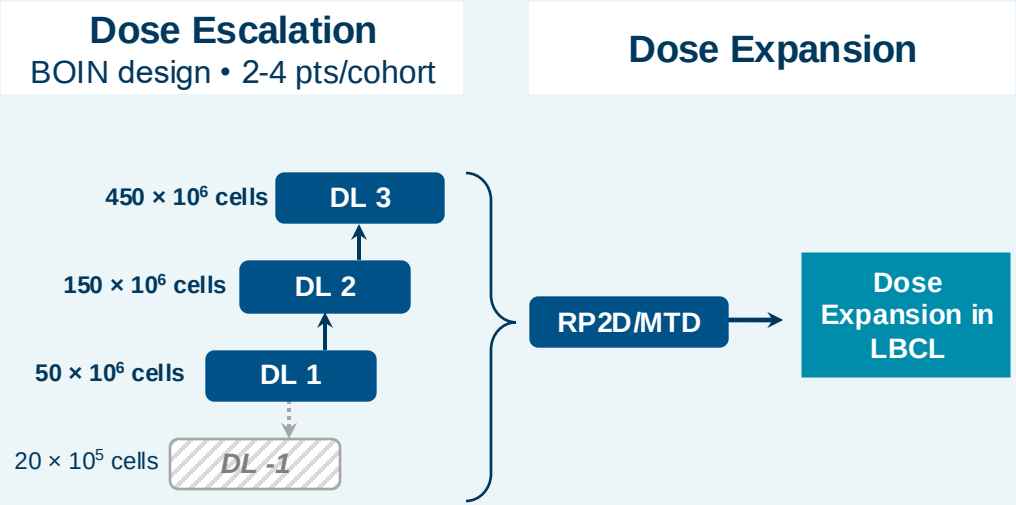
- Age 18–80 years
- Mature B-cell NHL except CLL/SLL, Richter's from CLL/SLL, Burkitt's lymphoma, or Waldenstrom's macroglobulinemia
- Tumor positive for CD20 and/or CD22
- Received ≥2 prior lines including CD19 CART if eligible

Primary objective:

- Safety, tolerability, & MTD/RP2D of UCART20x22

Additional objectives:

- Investigator-assessed response by Lugano
- UCART20x22 expansion in PB
- Immune reconstitution



FCA LD regimen:

- **Fludarabine** 30 mg/m^2 × 3d
- **Cyclophosphamide** 0.5 g/m^2 × 3d
- **Alemtuzumab** 60 mg total over 3 days

BOIN: Bayesian optimal interval; CART: chimeric antigen receptor T-cell therapy; CLL/SLL: chronic lymphocytic leukemia / small lymphocytic lymphoma, DL: dose level; d: days; FCA: fludarabine + cyclophosphamide + alemtuzumab; LBCL: large B-cell lymphoma, LD: lymphodepletion; MTD: maximum tolerated dose; NHL: Non-Hodgkin Lymphoma; PB: peripheral blood; pts: patients; RP2D: recommended phase 2 dose

UCART20x22 Baseline Characteristics

As of 28 July 2023, 3 patients received LD and were treated with UCART20x22 at Dose Level 1 (50×10^6 cells)

	Pt 1	Pt 2	Pt 3
Age	76	65	18
NHL Subtype	DLBCL	Transformed FL	Transformed MZL
Genetic/Molecular	Double expressor (BCL2, MYC)	Triple-hit	NOTCH1, PLCG2, CCND3, XBP1
Antigen Present	CD20+/CD22 unknown	CD20+/CD22 unknown	CD20-/CD22+
Stage at Screening	IV	IV	IV
Number of Prior Therapies	2	4	8
Prior CD19 CART	None	Lisocabtagene maraleucel x2	Axicabtagene ciloleucel
ECOG	0	0	1
Baseline Deauville Score	4	5	5
Disease Status at Screening	Relapsed	Relapsed	Refractory

CART: chimeric antigen receptor T-cell therapy; DLBCL: diffuse large B-cell lymphoma; ECOG PS: Eastern Cooperative Oncology Group performance status; FL: follicular lymphoma; LD: lymphodepletion; MZL: marginal zone lymphoma

UCART20x22 Safety Summary

- No UCART20x22-related DLTs
- No ICANS or GVHD was observed
- One CLLS52-related DLT of bone marrow aplasia after Day 42 thought to be due to cumulative chemotherapy exposure in a patient with baseline Grade 1/2 cytopenias and bone marrow hypocellularity at screening
- All patients experienced Grade 1 or 2 CRS that resolved with treatment
  - Pt 1 had Grade 1 CRS for 4 days managed with tocilizumab and dexamethasone
  - Pt 2 had Grade 2 CRS for 2 days managed with tocilizumab and dexamethasone
  - Pt 3 had Grade 1 CRS for 8 days managed with tocilizumab

CRS: Cytokine Release Syndrome, DLT: dose Limiting Toxicities, GvHD: Graft-versus-Host Disease; ICANS: immune effector cell-associated neurotoxicity syndrome ; Pt: Patient

Outcomes of UCART20x22 Patients Treated at DL1

3 patients were treated at dose level 1 (50×10^6 cells) and were evaluable for response:

Patient 1

Partial metabolic response

76-year old
- Double-expressor DLBCL
- Previous treatments:
  - R-CHOP
  - Radiation therapy
  - Polatuzumab vedotin with bendamustine/ rituximab

Patient 2

Complete metabolic response

65-year-old
- Triple-hit transformed follicular lymphoma
- Previous treatments:
  - Radiation therapy
  - Bendamustine/ rituximab
  - Dose-adjusted R-EPOCH
  - Liso-cel x 2

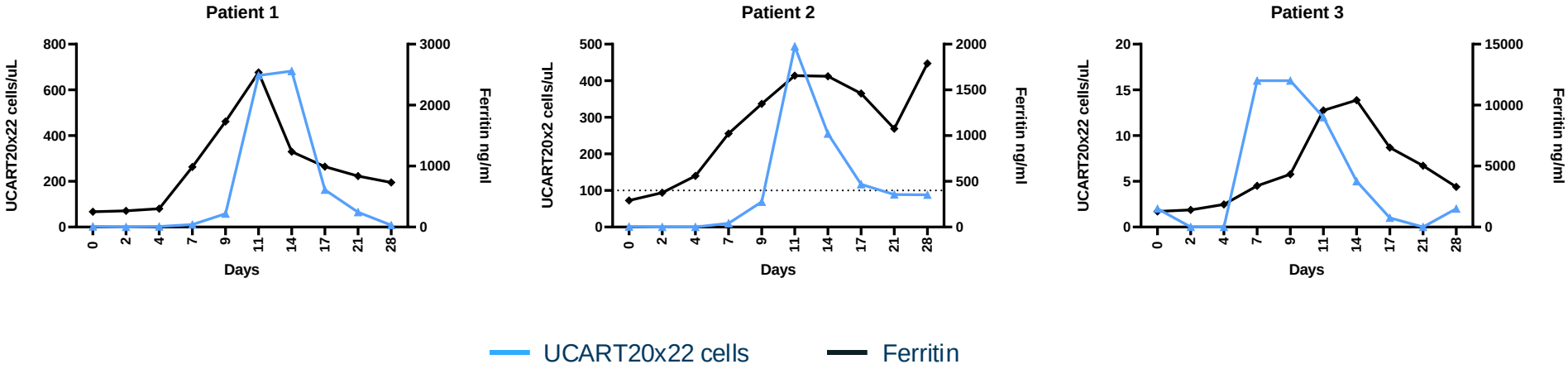
Patient 3

Complete metabolic response

18-year-old
- Relapsed/refractory transformed marginal zone lymphoma
- Previous treatments:
  - Chemo-immunotherapy
  - Venetoclax
  - Ibrutinib
  - Bendamustine /rituximab
  - Axi-cel
  - Obinutuzumab
  - Glofitamab
  - Tafasitamab/ lenalidomide
  - Experimental epigenetic modifier

DLBCL: diffuse large B-cell lymphoma

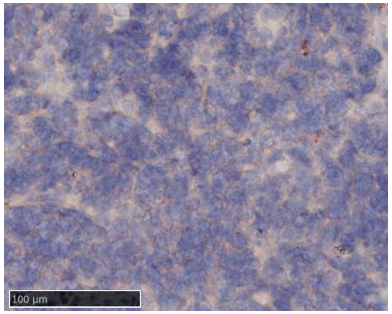
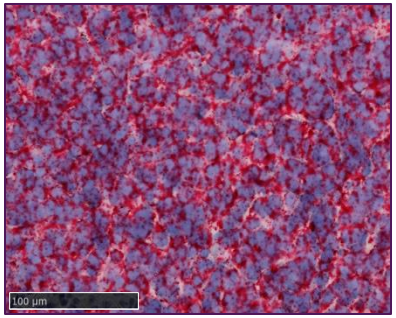
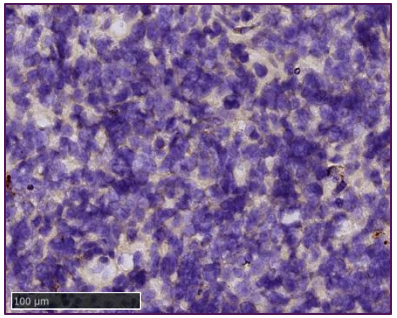
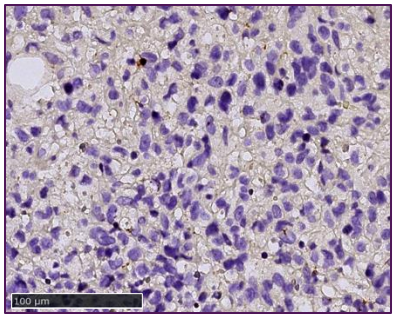
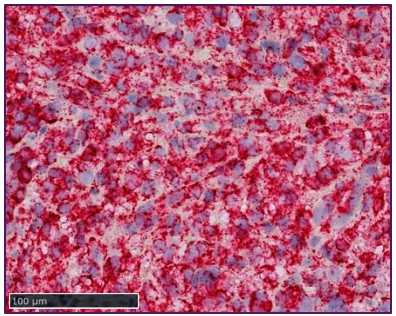
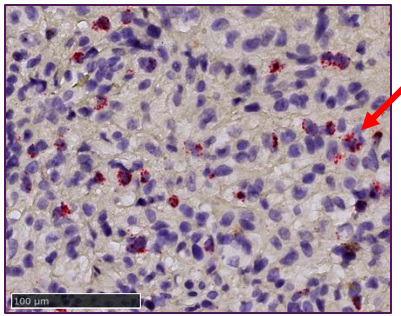
Robust Expansion of UCART20x22 Cells in Peripheral Blood Correlates with an Increase in Serum Ferritin Levels



UCART20x22 expansion was observed in all patients by flow cytometry in the peripheral blood:

- ~600 cells/μL in Patient 1 at Day 14
- ~400 cells/μL in Patient 2 at Day 11
- ~16 cells/ μL in Patient 3 at Day 9

UCART20x22 Cells Detected in Day 9 Post-Treatment Biopsy for Patient 3

	Negative Control	Positive Control	UCART20x22
Baseline			
Day 9			

UCART20x22

UCART20x22 cells were measured by RNAscope using a probe set specific for the UCART22 targeted sequence, at 20X magnification. No staining was observed with the negative control DapB (Bacillus subtilis strain SMY, a soil bacterium) in situ hybridization (ISH), strong staining with positive control UBC (ubiquitin C) ISH (red), UCART20x22 cells are detected by UCART22 ISH (Red), and hematoxylin counterstain (blue) nuclear staining.

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	Designed to be Safe, Precise & Efficient, Backed by Strong IP
Strong Partnerships	Anticipated Milestones, Diversified Financial Upsides

IP: Intellectual Property

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	Scattered

RNP: Ribonucleoprotein; mRNA: Messenger RNA

Diversified Partnerships with Industry Leaders

SERVIER moved by you	Allogene THERAPEUTICS	Allogene THERAPEUTICS	IOVANCE BIOTHERAPEUTICS	primera THERAPEUTICS	AstraZeneca
CAR-T CD19		**CAR-T BCMA, CD70 + 13 targets**	**TILs**	**Mitochondrial DNA editing**	**Cell and gene therapies**
Exclusive worldwide license to CD19-directed allogeneic CAR T-cells	U.S. rights sublicensed to Allogene by Servier[1]	Exclusive worldwide license to 15 allogeneic CAR T-cell targets[1]	Research collaboration and exclusive worldwide license agreement to develop gene-edited TILs	Collaboration agreement to develop mtDNA gene editing for mitochondrial diseases + option for exclusive worldwide license agreement on up to 5 product candidates	Joint Research and Collaboration agreement to develop up to 10 novel products in oncology, immunology and rare diseases and investment agreement
Up to $410M in Development & Sales Milestones + Low Double-Digit Royalties on Sales		Up to $2.8B in Development & Sales Milestones + High Single-Digit Royalties on Sales	Undisclosed Financials	19% equity upfront Option for up to $750M in Development & Sales Milestones + High Single-Digit Royalties on Sales	$25M upfront. Milestones from $70M to $220M per product and tiered royalties. $220M equity investment.
2014	2015	2014	2020	2022	2023

1 Servier grants to Allogene exclusive rights to cemacabtagene ansegedleucel in the U.S., EU and UK
TIL: Tumor-Infiltrating Lymphocyte; iPSC: Induced Pluripotent Stem Cells; NK: Natural Killer

Thank You

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