EDITING LIFE

NEXT-GENERATION CAR T-CELLS AGAINST CANCER

Gene-Edited Off-The-Shelf Immunotherapies

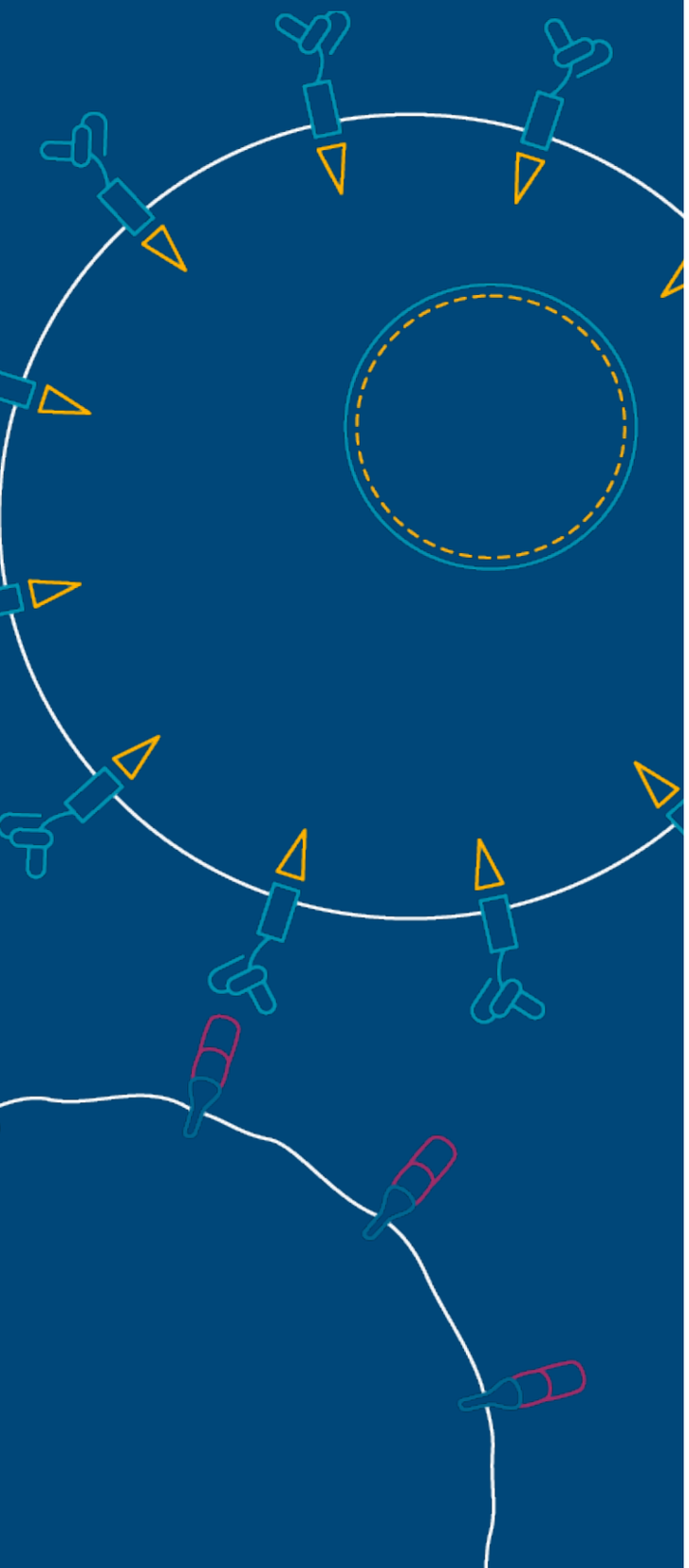
Forward-looking Statements

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 any future results, performance or achievements expressed or implied by the forward-looking statements.

The risks and uncertainties include, but are not limited to the risk that the preliminary results from our product candidates will not continue or be repeated, the risk that our clinical trials will not be successful. The risk of not obtaining regulatory approval to commence clinical trials on additional UCART product candidates, the risk that any one or more of our product candidates will not be successfully developed and commercialized. Further information on the risk factors that may affect company business and financial performance, is included our annual report on form 20-f and other filings Cellectis makes with the securities and exchange commission from time to time and its financial reports.

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.



OUR MISSION

Translate ground-breaking gene-editing and CAR T-cell technology into game changing therapies, bringing hope to patients with high unmet needs

OUR VISION

Transform cell therapies through gene-editing, creating readily available pharmaceutical-grade products for broad patient populations

OUR STRATEGY

Enable a paradigm shift in medically relevant targets in hematological malignancies and expand into solid tumors.
Explore and offer treatments for other therapeutic areas driven by the broad potential of our technology.

Investment Highlights

First Company to Turn Gene-Editing into a Therapeutic Success

In June 2015, the 1st infant ALL patient was treated with Cellectis' gene-edited allogeneic CAR T-cells

Three Allogeneic CAR T-Cell Programs with IND approved by FDA

UCART19 (ALL) – March 2017

UCART123 (AML, BPDCN) – July 2017

UCART22 (ALL) – May 2018

Inventing 21st Century Cell Manufacturing

Building best-in-class Commercial cGMP facility for Gene-Edited Cell Therapy

Leading Gene-Editing Platform

Proprietary TALEN® gene-editing platform

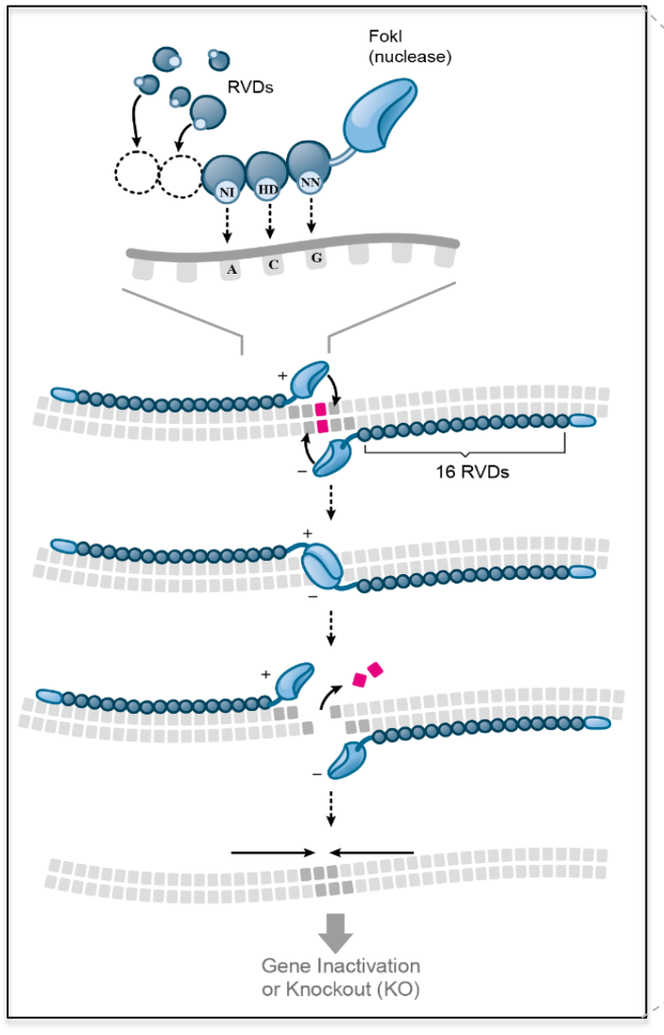
Technologies approved by FDA and EMA for several clinical trials

Industry-leading precision and multiplexing gene editing capacity

Broad intellectual property portfolio, built on 18 years of experience

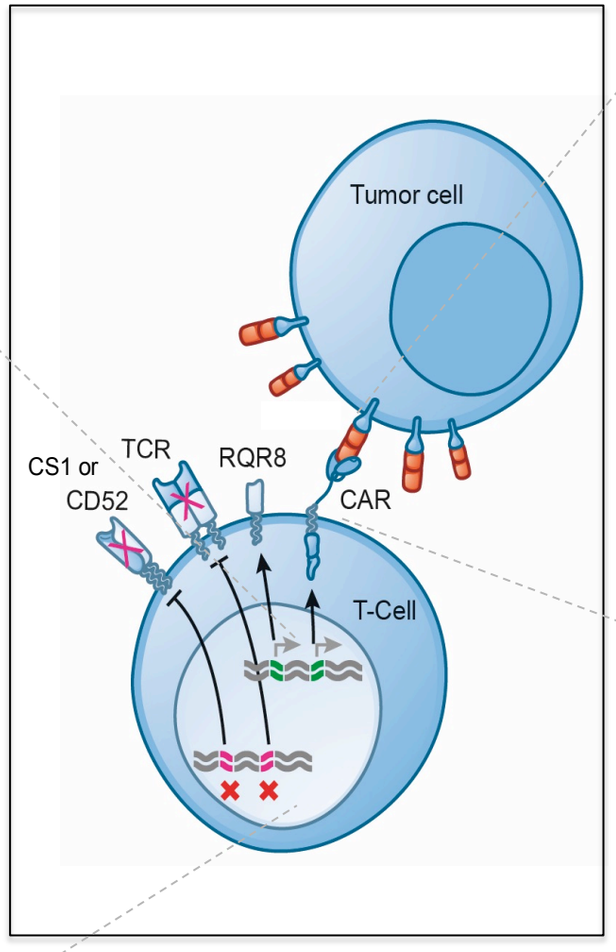
The Allogeneic CAR T-Cell Concept

How it works



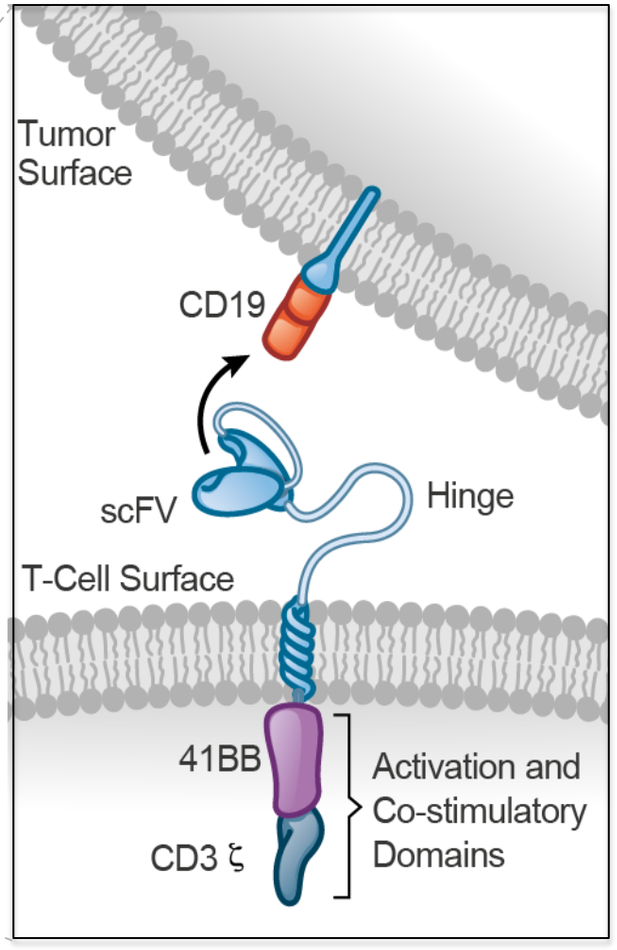
Gene Editing

TALEN® Nuclease



Allogeneic

CAR T-cell

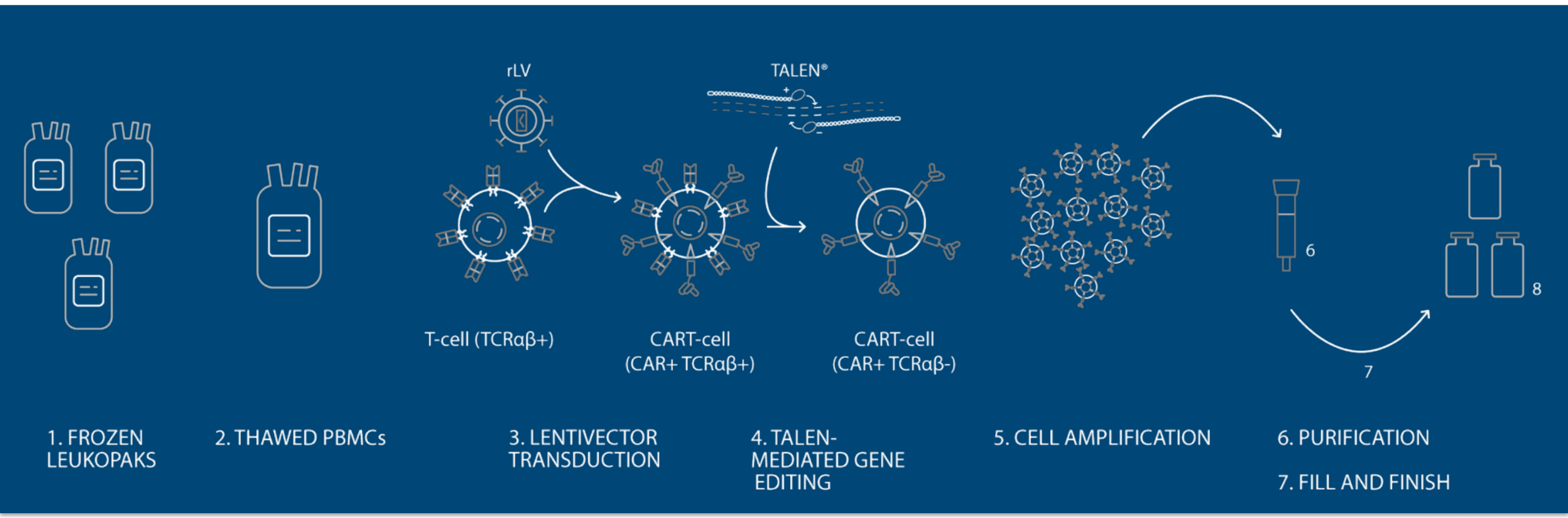


Chimeric Antigen Receptor

Tumor Recognition

GMP Manufacturing

Integrated System for Gene-Editing And CAR T-Cell Manufacturing



- Industry-leading experience in allogeneic CAR-T manufacturing
- Successful GMP manufacturing of UCART19, UCART123, UCART22
- GMP manufacturing of UCARTCS1 in progress
- Full QC system in place, cleared for clinical trials in the EU and by the FDA

Key Differentiating Objectives of UCARTs

UCARTs = Cellectis' Allogeneic CAR T-Cells

Market access

- Easily and readily available at hospitals
- Potential to address large patient population (broader than autologous CAR T-cells)
- Enables a fast and dynamic medical footprint in underserved geographical regions

Cost of treatment

- Possibility to lower the price of CAR T-cell therapies
- Scalable business model

Ability to re-dose

- Possibility to re-dose / re-challenge with same antigen targeting CAR T-cells
- Possibility to combine different antigen targeting CAR T-cells

A Powerhouse in Allogeneic CAR T-Cells

Strategic Alliance With Leading Cell Therapy Team

The leader in allogeneic CAR T-cells:

cellectis
EDITING LIFE

In collaboration with Kite Pharma's former leadership team:

Allogene THERAPEUTICS

Expanding the clinical development in collaboration with:

SERVIER

Economics to Cellectis:

UCART19 (Allogene/Servier):

- $350M in development milestones
- Royalties on sales

15 Licensed Programs (Allogene):

- $185M in development milestones per program
- Royalties on sales

> $3bn in potential total milestone payments

With equity investments by leading pharma partners:

Pfizer

GILEAD

The success of our Partners is the success of Cellectis

Pipeline

Rich allogeneic CAR T-Cell pipeline with multiple shots on goal

INDICATION	PROGRAM	TARGET	PRE-CLINICAL	PHASE 1	PHASE 2	ANTICIPATED MILESTONES
ALL	UCART19 [1]	CD19				*Initiate potential registration trials in ALL in 2H 2019 [3]*
ALL	UCART22	CD22				*Initiate Ph1 trials in 2H 2018*
NHL	UCART22	CD22				
NHL	ALLO-501 [1]	CD19				*File IND in 1H 2019 [3]*
AML	UCART123	CD123				*Initiate potential expansion trials in AML in 2H 2019*
BPDCN	UCART123	CD123				
AML	UCART CLL1	CLL1				
AML	ALLO-819 [2]	FLT3				
MM	UCART CS1	CS1				*File IND in 1H 2019*
MM	ALLO-715 [2]	BCMA				*File IND in 2019 [3]*
MM	UCART 38	CD38				

[1] UCART19 is exclusively licensed to Servier and under a joint clinical development program between Servier and Allogene

[2] Product candidate is exclusively licensed to Allogene

[3] According to Allogene investor presentation

Proprietary Development Program

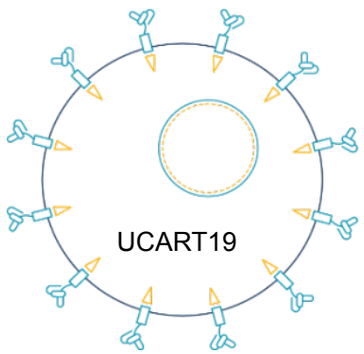
Licensed Development Program

UCART Targeting Rationale

A summary of our most advanced CAR T-cell product candidates

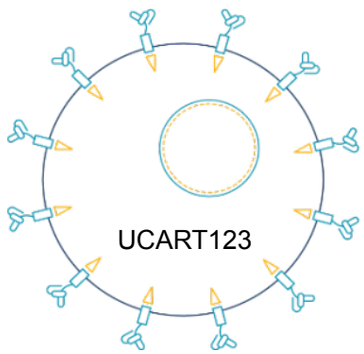
CD19 [1] in ALL

- High expression in ALL / DLBCL / NHL patients
- Well proven CAR T-cell target
- Allogeneic proof-of-concept



CD123 in AML

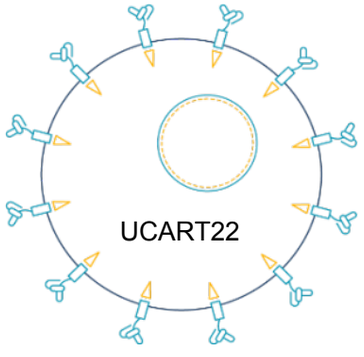
- High expression on blasts in majority of AML patients
- High relapse rate and poor overall survival in R/R patients

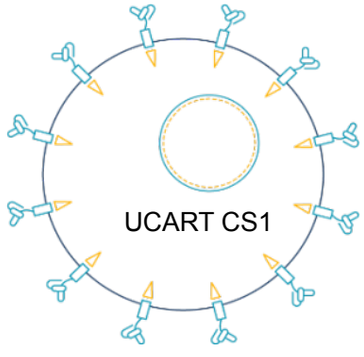


- TCR gene disruption using TALEN® to avoid GvHD
- Suicide gene is included for safety

CD22 in ALL

- High number of patients relapse after CD19- CAR T-cell treatment
- CD22 expression frequently maintained in CD19-negative blasts





CS1 in Multiple Myeloma

- Well proven mAb target with elotuzumab (BMS/Abbvie)
- CS1 (SLAMF7) is highly expressed on MM cancer cells

[1] UCART19 is exclusively licensed to Servier and under a joint clinical development program between Servier and Allogene

UCART19[1]

Initial Proof Of Concept In Relapsed / Refractory ALL Patients

Product Objectives

- Ready-to-use, off-the-shelf therapy
- Single healthy donor cell batch can be used to treat multiple patients

Development Status

- Phase I trials started in 2016 in EU, in 2017 in the US
- Phase II planned for 2019
- Multiple recruiting centers (EU and the US)
- Enrolled patients failed >5 lines of treatment

Results to date

- Comparable results to early Phase I results from autologous CAR T-cell trials
- Some patients received a second dose of UCART19

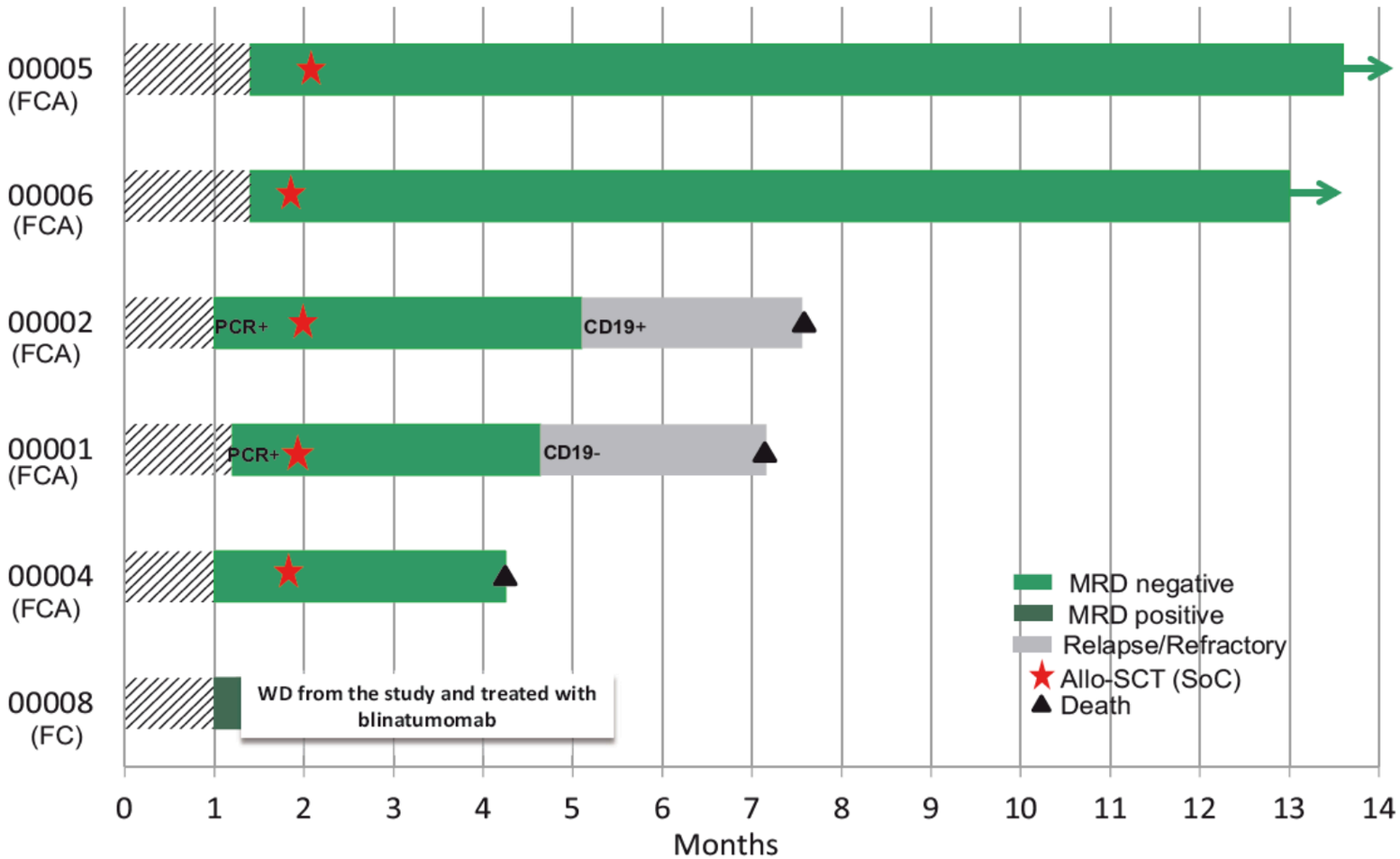
[1] *UCART19 is exclusively licensed to Servier and under a joint clinical development program between Servier and Allogene.*

UCART19[1] – Ph 1 R/R Pediatric ALL Study

Presentation at 23rd Congress of EHA, June 14-17, 2018

- All patients completed the 28-day evaluation period and were evaluable for anti-leukemic activity
- 5/6 pts had achieved complete remission with incomplete blood count recovery and were MRD[2] negative (<0.01%) by flow cytometry or qPCR
- To date UCART19 related toxicities have been manageable

UCART19 Anti-Leukemic Activity (EHA 2018 Poster #PF175[3])



[1] UCART19 is exclusively licensed to Servier and under a joint clinical development program between Servier and Allogene.

[2] MRD: Molecular Residual Disease

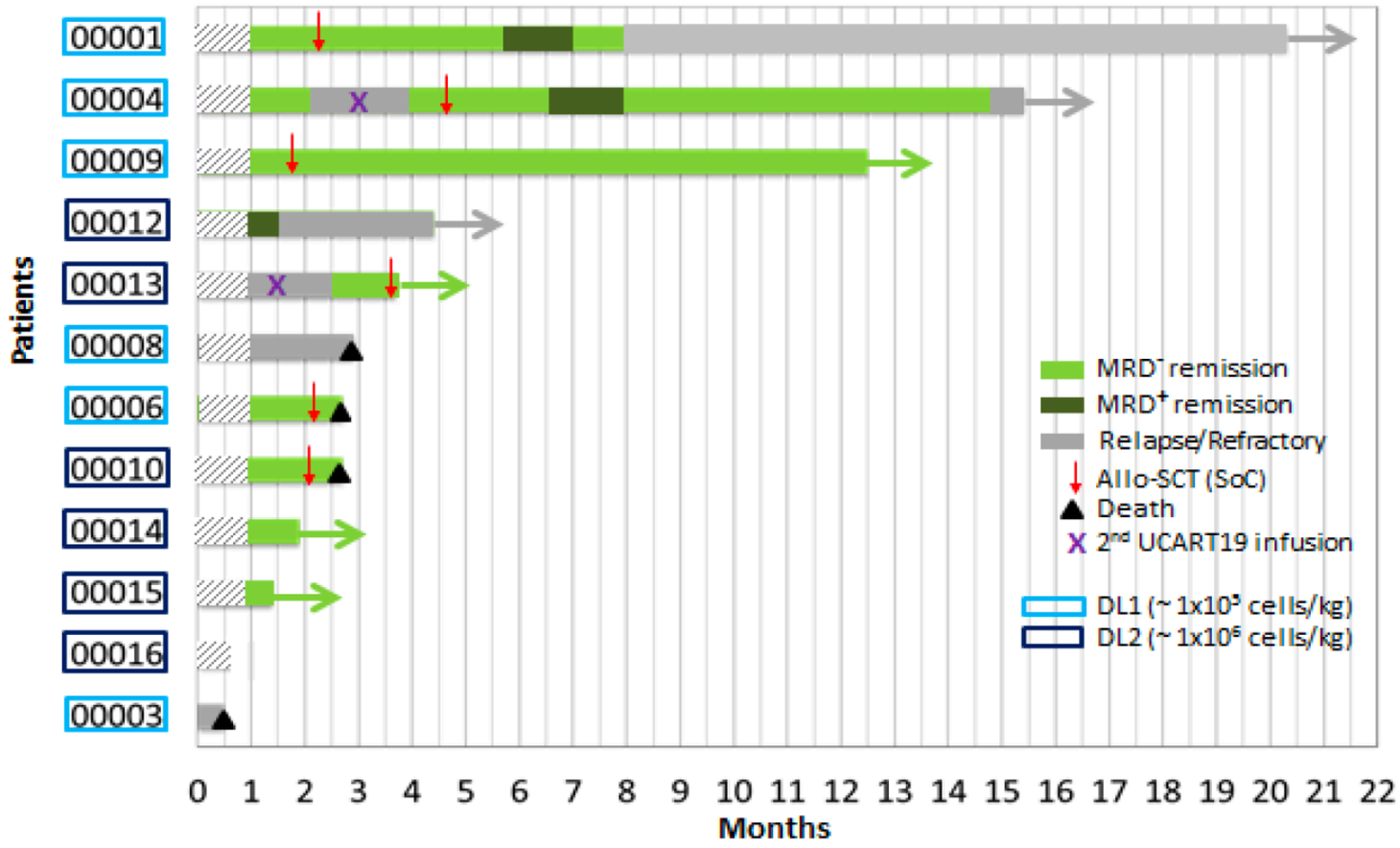
[3]Poster #PF175 "Phase I study of UCART19, an allogeneic anti-CD19 CAR T-cell product, in high risk pediatric patients with CD19+ relapsed/refractory (R/R) B-cell ALL: Preliminary results of PALL study" presented at 23rd EHA Congress, June 14-17, 2018, Stockholm

UCART19[1] – Ph 1 R/R Adult ALL Study

Presentation at 23rd Congress of EHA, June 14-17, 2018

- 10/12 patients were evaluable for anti-leukemic activity at day 28 post UCART19 infusion
- At day 28, 8/10 evaluable patients achieved a complete remission (CR), including 7 patients in MRD- CR
- Two patients have been re-dosed with UCART19 following a first dose. Both patients achieved MRD- CR at day 28 following the second dose.

UCART19 Anti-Leukemic Activity (EHA 2018 Poster #PF178[2])



[1]UCART19 is exclusively licensed to Servier and under a joint clinical development program between Servier and Allogene.

[2]Poster #PF178 " Phase I study of UCART19, an allogeneic anti-CD19 CAR T-cell product, in high risk adult patients with CD19+ relapsed/refractory (R/R) B-cell ALL: Preliminary results of phase I CALM study" presented at 23rd EHA Congress, June 14-17, 2018, Stockholm

UCART123

Targeting AML and BPDCN

Unmet Medical Need

- Current chemotherapeutics fail to eliminate leukemia stem cells (LSC)
- Newly approved therapies have shown limited benefit over standard of care

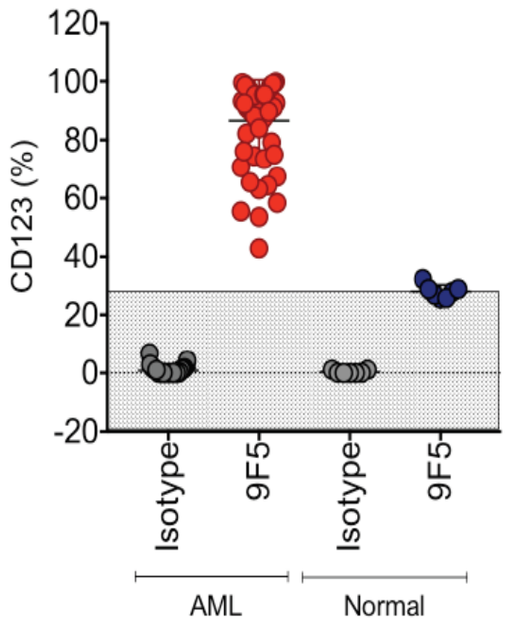
Pre-Clinical Data

- Significant improvement compared to Cytarabine standard-of-care (Ara-C)
- Encouraging results with CD123 target in autologous CAR T-cell approaches (City of Hope trials presented at ASH 2017)

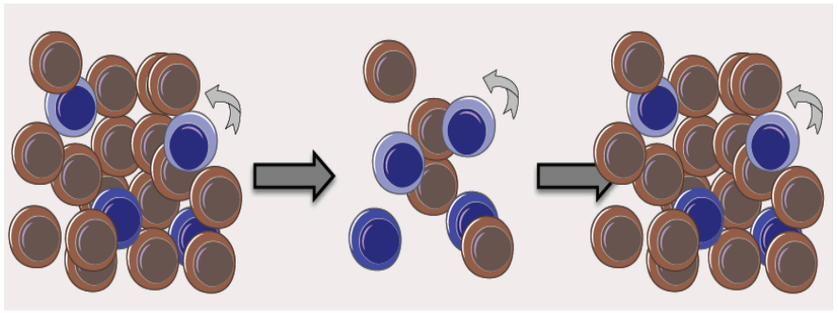
Weill Cornell Medicine

THE UNIVERSITY OF TEXAS MD Anderson Cancer Center
Making Cancer History®

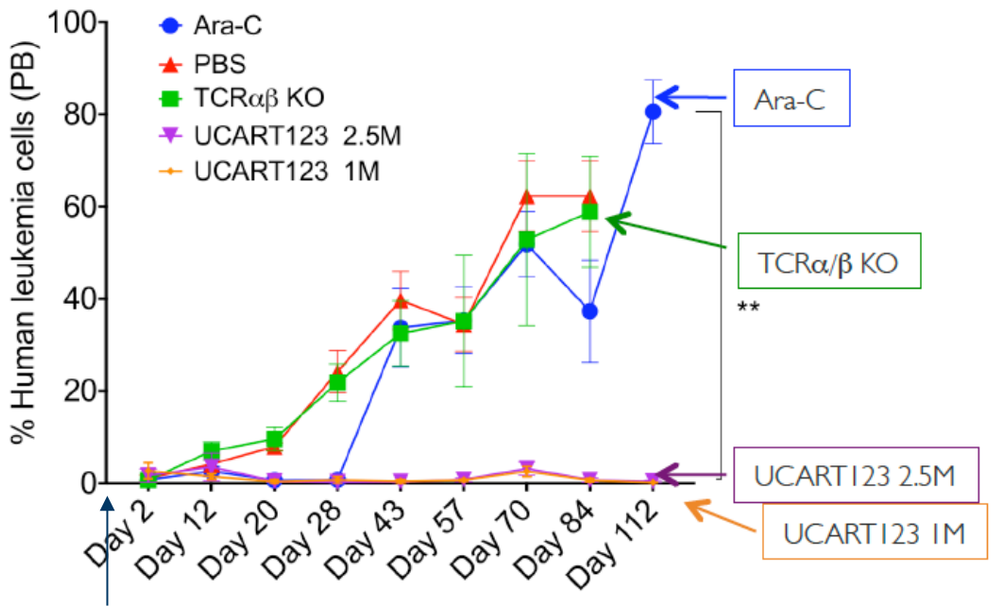
CD123 Expression



Failure to eliminate leukemia stem cells



Peripheral Blood Evaluation



UCART123 Infusion

AML – an overview

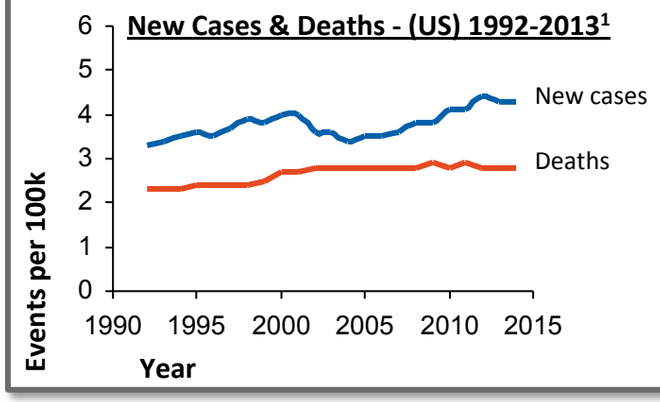
High unmet medical need remains clinical reality

Substantial Market

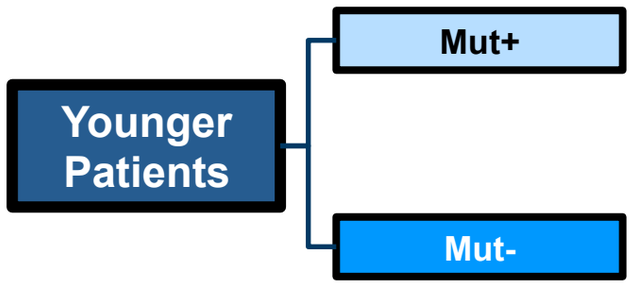
Estimated new cases in 2017[1]

~21k

New Cases & Deaths - (US) 1992-2013[1]



Patient Segments



With Rydapt and Idhifa approvals, AML market is becoming increasingly **fragmented by mutation status**
FLT3-mut.30% of cases, IDH1-mut 7.3%, IDH2-mut 8.7%

Epigenetic dysregulation is a hallmark of AML regardless of FLT3 or IDH mutation status. Hypomethylating agents are a standard in AML care, especially in patients unfit for 7+3 and in the r/r setting

Unmet Need

AML Cancer Deaths & 5-yr Survival

~10.6k
Estimated 2017 deaths[1]

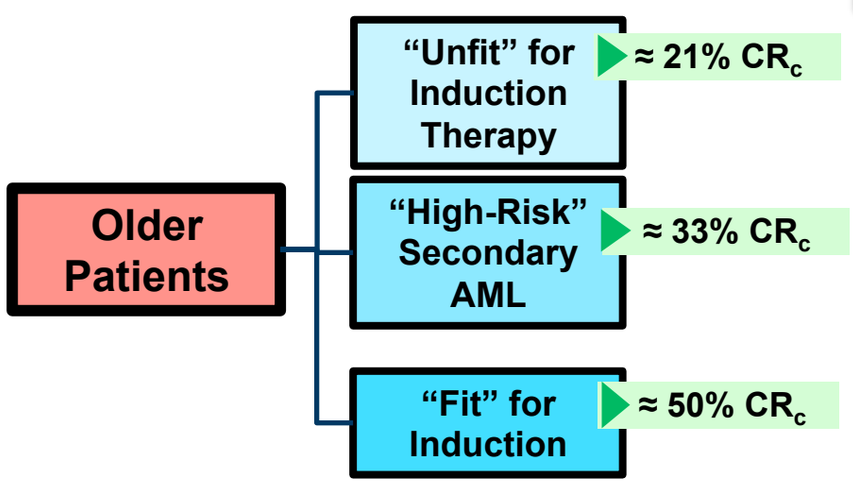
26.9%
Estimated 5-year survival[1]

Pts >55y– Fit (5-yr OS)

6%

Pts >55y – 1L Unfit (mOS)[2]

5mo



Current benchmarks *legacy therapies*	***Future benchmarks***
Low-dose cytarabine Hypomethylating agents	Venetoclax + LDAC Venetoclax + HMAs
"7+3"	CPX-351 (likely SoC)
"7+3"	

1) SEER; 2) ASH Conference 2016 Abstract #102; Dillman et al (1991) Blood; Stone et al (2015) Blood; Stein and Tallman (2016) Blood; Ravandi et al (2016) Cancer; Tefferi and Letendre (2012) JCO; Borate et al (2015) Cancer; Stone et al (2012) Leukemia, Heiblig et al (2016) Medit. J. Hematol Infect Dis.; Burnett et al (2007) Cancer; Lin et al (2016) ASCO Abstract #7007; Pollyea et al (2016) ASCO Abstract #7009; Lancet et al (2016) ASCO Abstract #7000; Stone et al (2015) JCO, European Hematology Association 2017 Abstract S473

UCART123 Dosing Schedule

First Wholly-Controlled CAR T-Cell Program In The Clinic

- AML Phase 1 dose-escalation trial ongoing at Weill Cornell & MD Anderson Cancer Center
- First patient dosed in June 2017

Dose Escalation (mTPI) Phase (R/R AML)

DL3	5.05x10^6/kg
DL2	6.25x10^5/kg
DL1	2.5x10^5/kg
DL-1	1.25x10^5/kg

Total Dose Escalation N= 18 pts

Expansion Phase

RR AML
N=18-37

Untreated AML
ELN Adverse Genetic Group
N=46-107

Total Phase I Expansion
N=64-144

Clinical research coordinated by principal investigator Prof. Gail J. Roboz, MD, at Weill Cornell

UCART22

Targeting R/R ALL

Unmet Medical Need

- Proven target for ALL and potentially NHL
- No solution for relapsed patients after CD-19 directed CAR T-cell treatment
- Loss of CD-19 antigen requires new CAR T-cell target

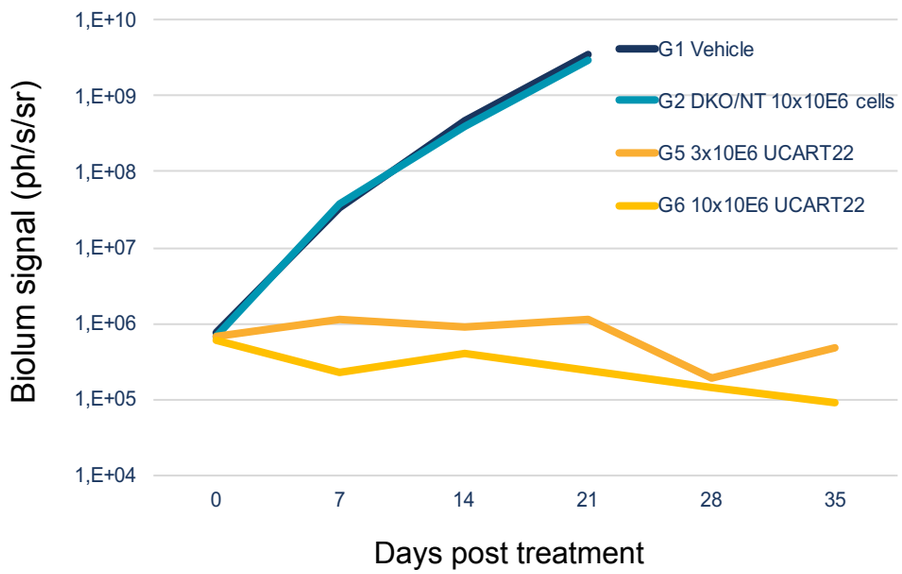
Pre-Clinical Data

- UCART22 is highly efficient at eradicating tumors *in vivo*
- UCART22 cells result in increased mice survival

Enrolment Strategy

- Relapsed / refractory adult ALL patients first
- Enrolment open to CD19 treatment naïve patients
- Open also to anti-CD19 pre-treated relapsing patients
- Selection of strong CD22 expressing B-malignant cells (>2,000 CD22/cell)
- First dose cohort starting at $1x10^5$ UCART22 cells per kg
- Age limit is 65 years
- Transplant after UCART22 treatment not a requirement

CD22+ Cell Line Show no Tumor Progression



UCARTCS1

Targeting Multiple Myeloma

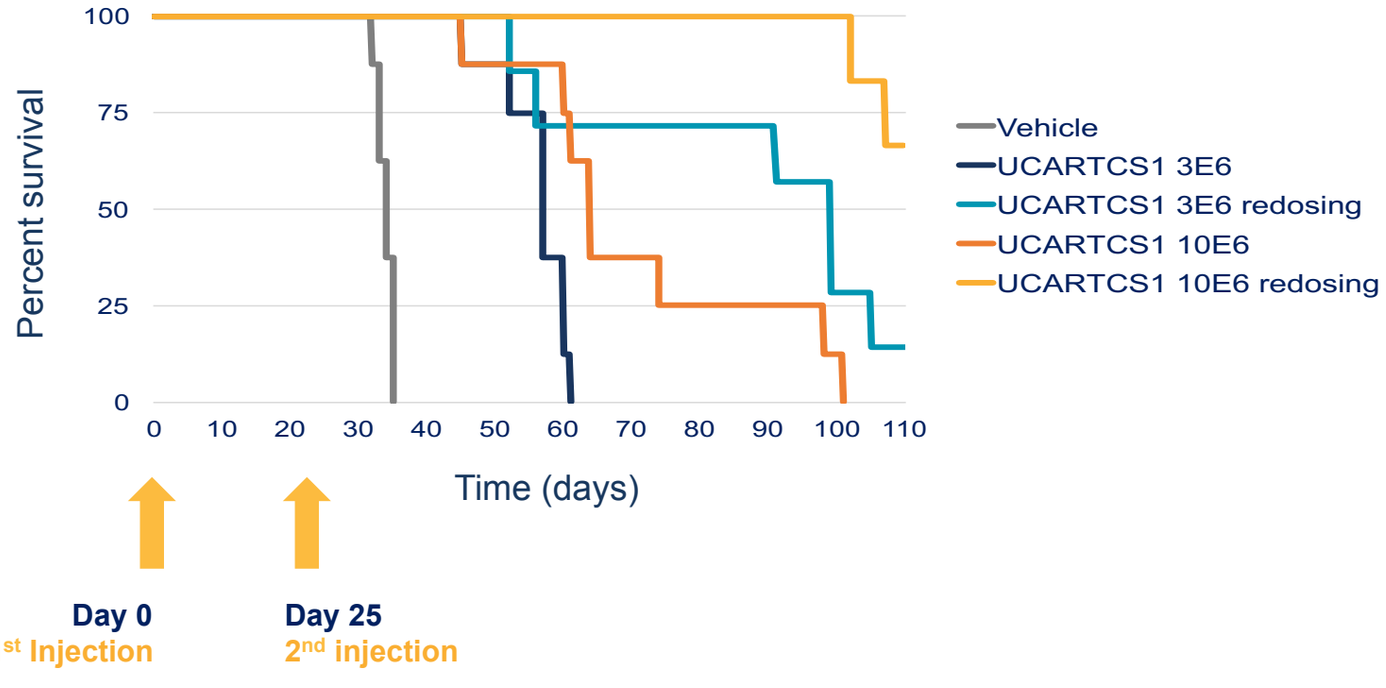
Unmet Medical Need

- > 30,000 patients / year in the US
- High relapse rate, median OS of 9 months
- Autologous BCMA-targeted CAR T-cell therapies show high relapse rate
- Need for potential multiple dosing strategy

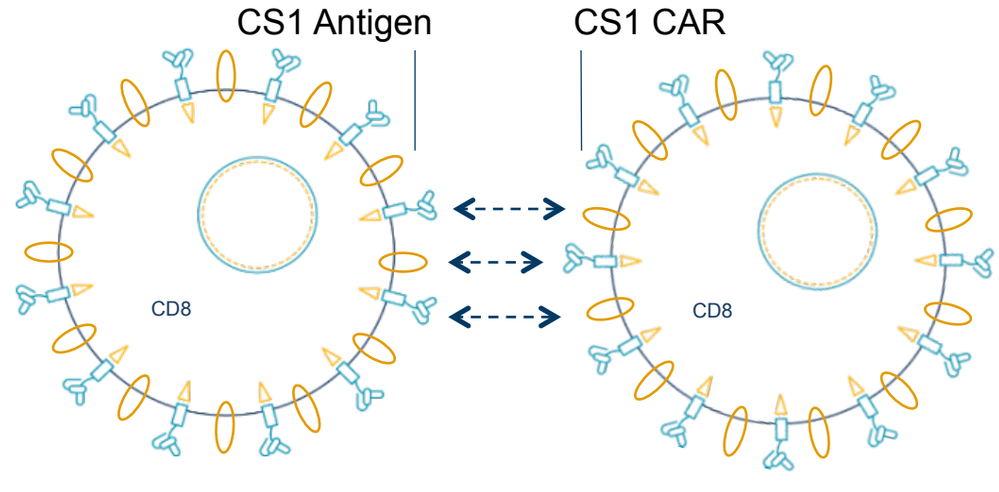
Pre-Clinical Data

- Strong anti-tumor effect in mice
- Mice injected with two consecutive doses of UCARTCS1 show longer survival than single dose injected mice
- Total number of cells of two doses is lower than single dose

Two consecutive doses vs single dose of UCART CS1 :



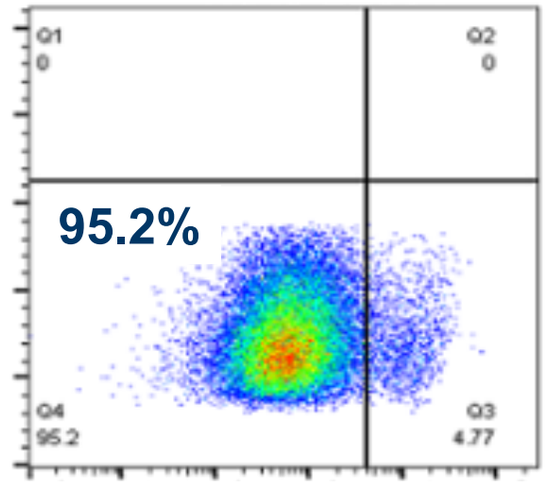
Knock-Out of CS1 on CAR T-Cells to disable cross-reaction



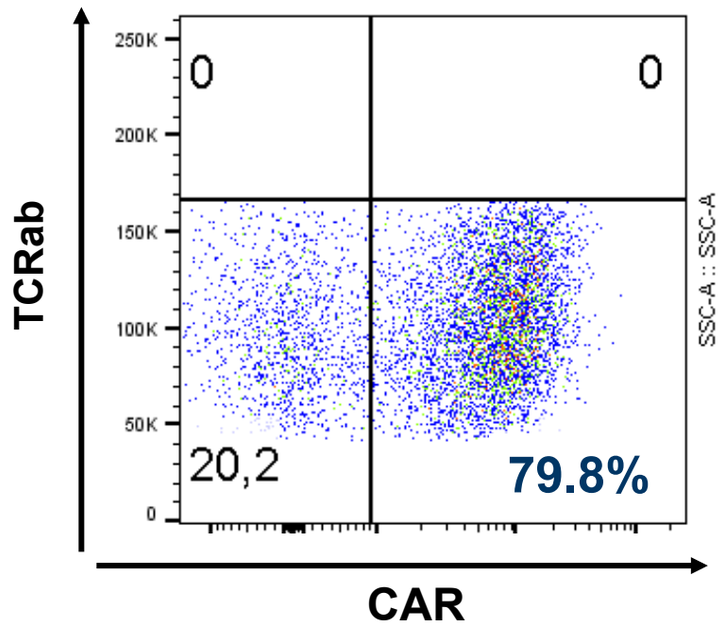
Proprietary TALEN® Gene-Editing Platform

High Knock-Out and Knock-In Efficiencies

- **95.2% single targeted gene knock-out**
  - TRAC Knock-Out



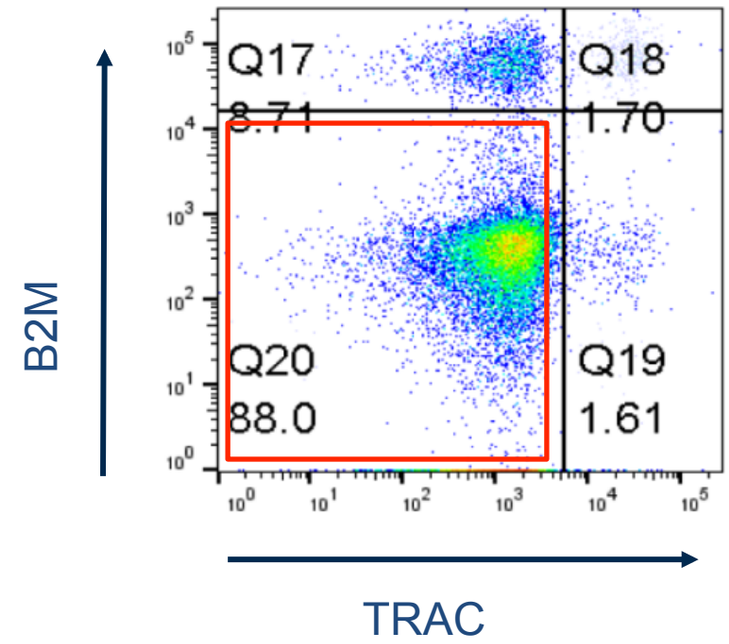
- **~80% single gene integration**
  - CAR Knock-In at TRAC Locus



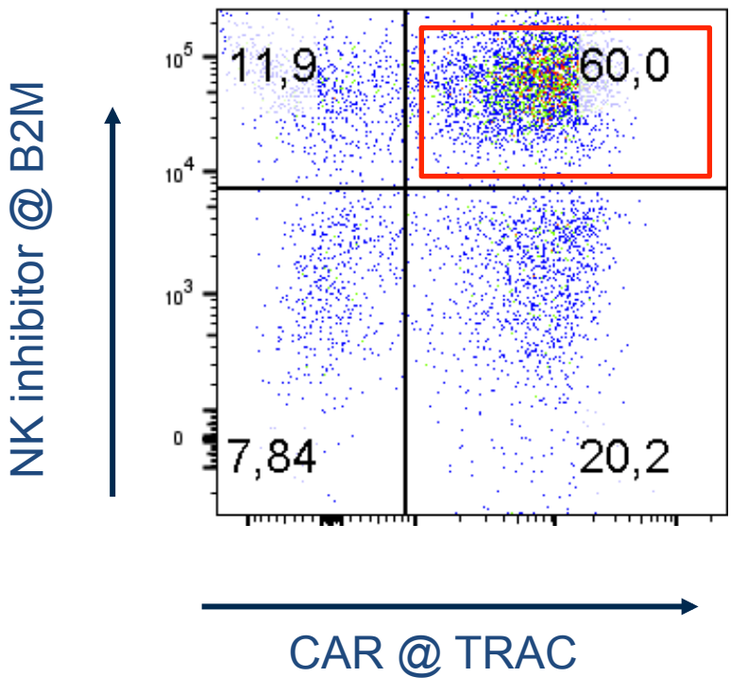
TALEN® High Yield Multiplex Gene Editing

Combining Knock-Out and/or Knock-In in T-Cells

- **88% double targeted gene knock-out**
  - TCR and B2M



- **60% double targeted gene insertion**
  - CAR insertion at TCR
  - NK inhibitor at B2M



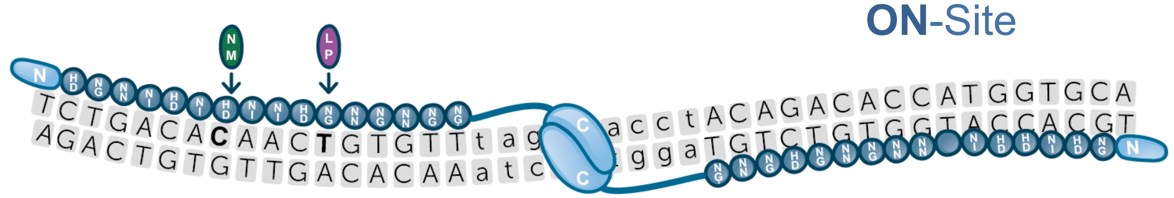
Control of TALEN® Off-Target Effect

Use of engineered RVDs to discriminate between ON and OFF-site

- Educated utilization of engineered RVDs to discriminate HBB loci preventing OFF-site cleavage

HBB

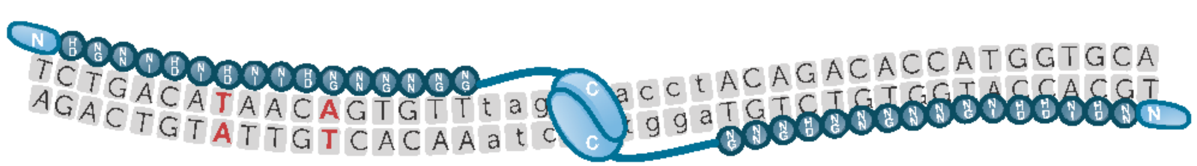
ON-Site

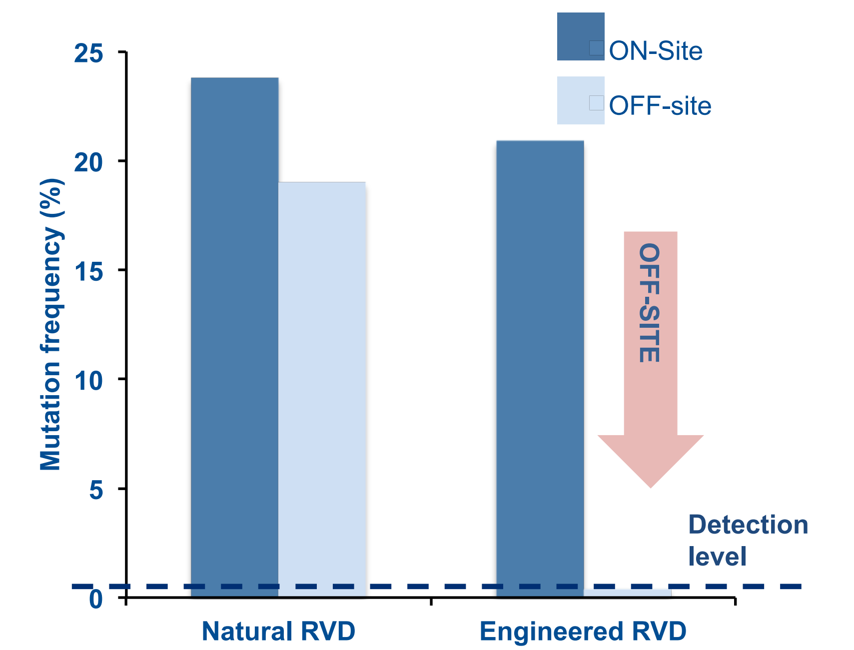


ON-site/OFF-site > 94 % identity

HBD

OFF-Site





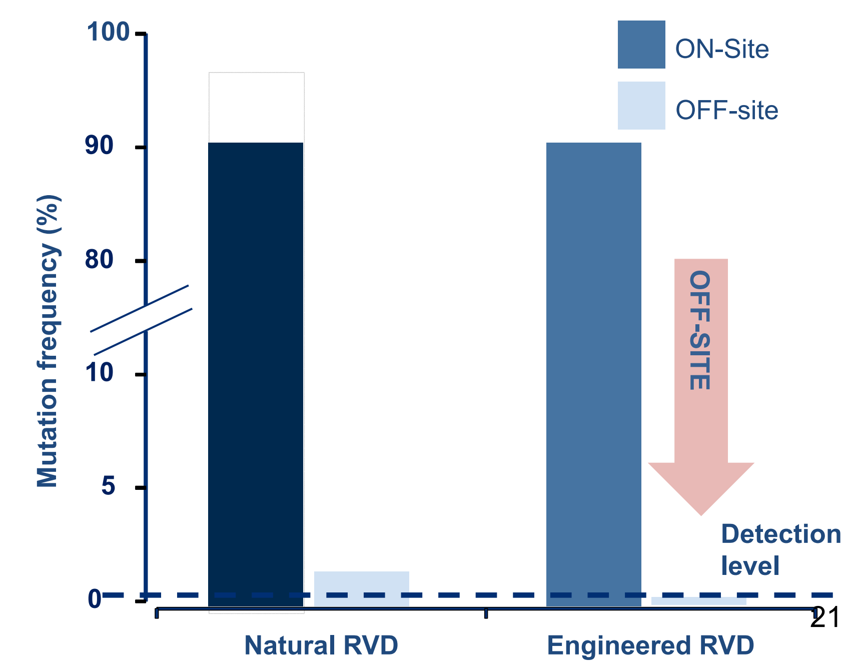
Juillerat et al (scientific report 2015)

PD1

ON-Site

Chr17 q24.1

OFF-Site

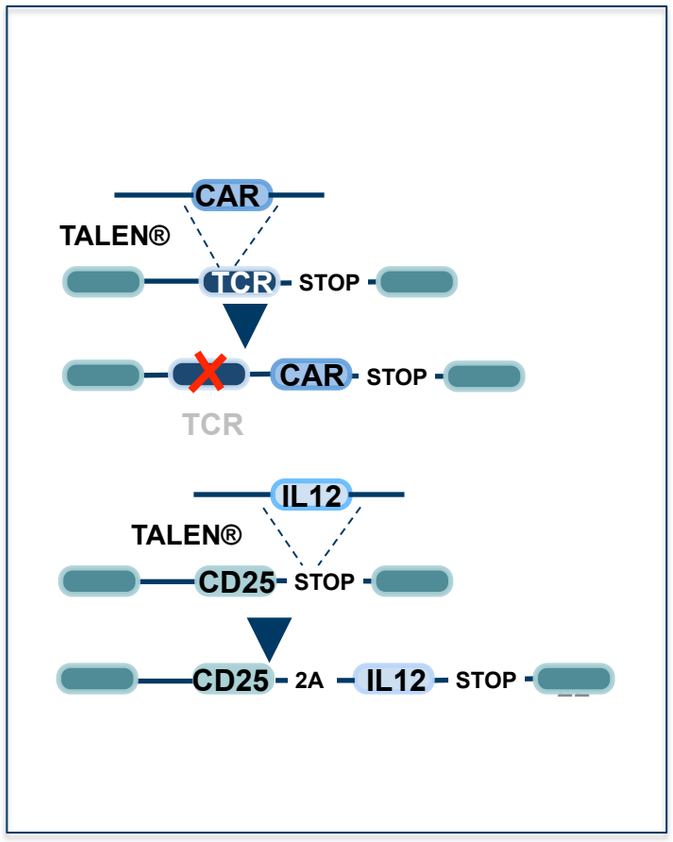


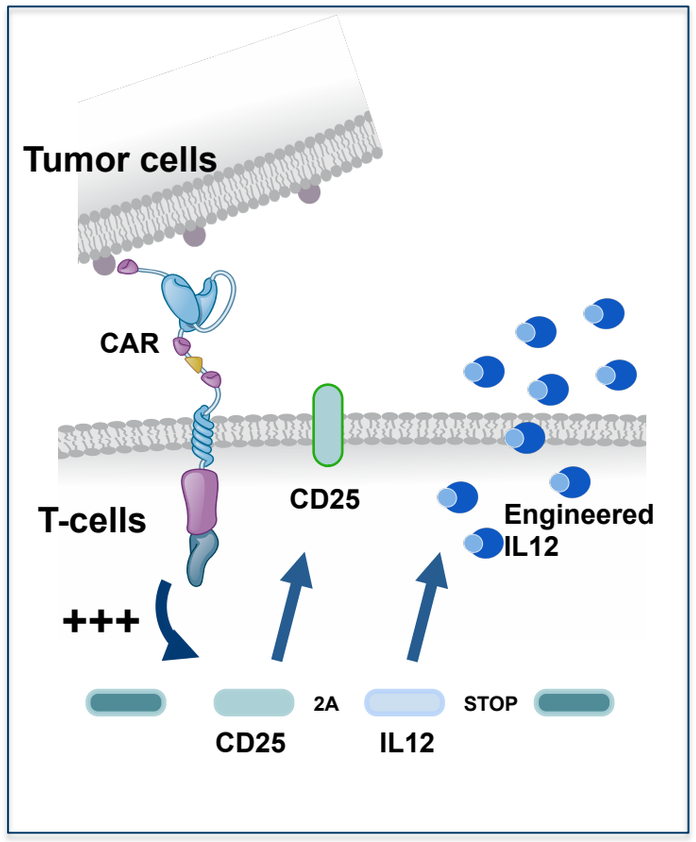
Next Gen. CAR-T Cells Targeting Solid Tumors

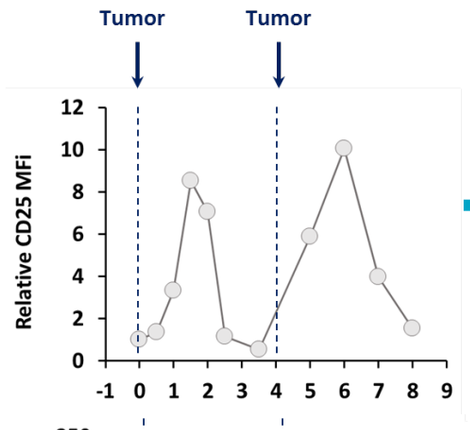
Synthetic Biology For High Performance UCARTs

Example of targeted integration at CD25 locus

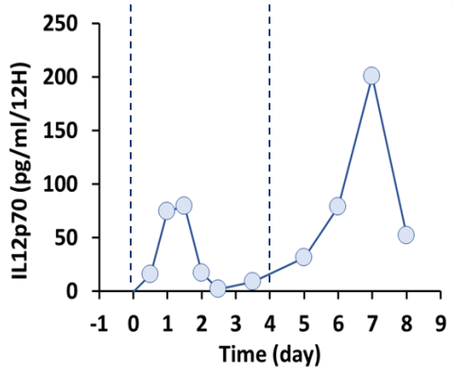
- IL12 contributes to anti tumor activity (Th1, NK, CD8)
- I.V. IL12 shows systemic adverse effects (BM, Liver, mucus membranes)
- Local On-Target IL12 secretion may avoid systemic toxicity



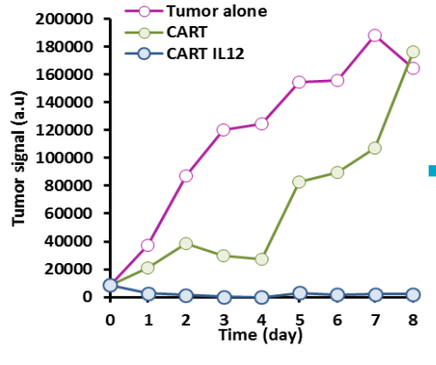




CD25 expression upon tumor engagement



Engineered IL-12 follows CD25 expression pattern upon tumor engagement



Tumor dependent expression of engineered IL-12 under the control of CD25 promoter significantly **improves tumor eradication**

The Cellectis Group

cellectis

- NASDAQ: CLLS
- EURONEXT GROWTH: ALCLS
- 491M$ cash as of June 30, 2018
- Expected to fund operations into 2022

70,2% ownership

calyxt

- NASDAQ: CLXT
- 106M$ cash as of June 30, 2018
- Based in Minnesota
- Consumer focus
- High value asset

Gene editing is the link

THANK YOU

cellectis

EDITING LIFE

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