The Next Revolution in Cell Therapy

Leading Today, Creating Tomorrow

March 2020

Forward-Looking Statements

To the extent statements contained in this Presentation are not descriptions of historical facts regarding Allogene Therapeutics, Inc. ("Allogene," "we," "us," or "our"), they are forward-looking statements reflecting management's current beliefs and expectations. Forward-looking statements are subject to known and unknown risks, uncertainties, and other factors that may cause our or our industry's actual results, levels or activity, performance, or achievements to be materially different from those anticipated by such statements. You can identify forward-looking statements by words such as "anticipate," "believe," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "will," "would" or the negative of those terms, and similar expressions that convey uncertainty of future events or outcomes. Forward-looking statements contained in this Presentation include, but are not limited to, statements regarding: the timing and ability to progress the clinical trials of ALLO-501 and ALLO-715 and present any proof-of-concept data from the trials, the timing and ability to initiate and progress a clinical trial of ALLO-501A, our collaborator's ability to obtain any necessary rights to ALLO-501A, the timing and ability to initiate a clinical trial of ALLO-715 in combination with SpringWorks' nirogacestat, the timing and ability to file an IND and initiate clinical trials of ALLO-316 and ALLO-605, the ability to manufacture AlloCAR T™ therapies, including ALLO-501A, ALLO-316 and ALLO-605 for use in clinical trials, and the potential benefits of AlloCAR T™ therapy. Various factors may cause differences between Allogene's expectations and actual results as discussed in greater detail in Allogene's filings with the Securities and Exchange Commission (SEC), including without limitation in its Form 10-K for the year ended December 31, 2019 filed with the SEC on February 27, 2020.

Except as required by law, we undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise. This Presentation shall not constitute an offer to sell or the solicitation of an offer to buy securities, nor shall there be any sale of securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction.

Allogene: Leading the Future of AlloCAR T™ Cell Therapy

People

- Highly experienced management team
- ~200 employees

Pipeline

Key 2020 Data Milestones

- ALLO-501: R/R NHL (Q2 2020)
- ALLO-715: R/R MM (Q4 2020)

Allogene THERAPEUTICS
(Nasdaq: ALLO)

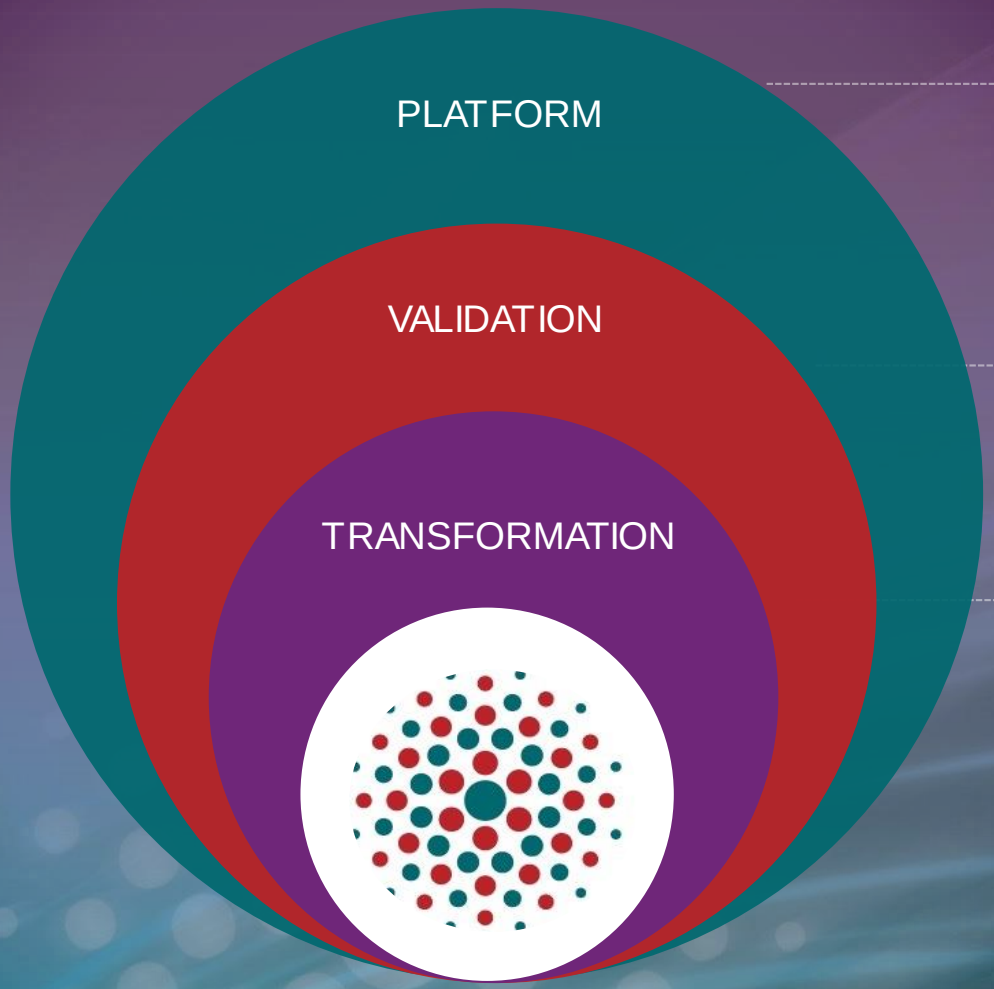
Partners

SERVIER
cellectis
Notch THERAPEUTICS
SpringWorks THERAPEUTICS

Capital

~$589M in cash and investments as of 12/31/19

The AlloCAR T™ Platform for Today and Tomorrow



Establish industry leading AlloCAR T platform

- TALEN® gene editing technology
- Proprietary lymphodepletion
- State-of-the-art manufacturing

Rapid development across robust AlloCAR T portfolio

- 3 Clinical & 17 Preclinical programs across both hematological and solid tumor indications

Pre-clinical next generation technologies

- TurboCAR™: Improved T cell fitness
- Immune evasion: Enhanced expansion/persistence
- Solid tumors: CAR optimization and target selection
- iPSCs: Renewable cell source

Allogene THERAPEUTICS

Why Allogeneic Cell Therapy Will Lead the Revolution

Access

- Potential to treat all eligible patients
- Repeat dosing, if needed
- No need for complex logistics

Cost

- Scalable and efficient manufacturing
- Potential to treat 100+ patients from a single manufacturing run
- Lower ancillary costs of care

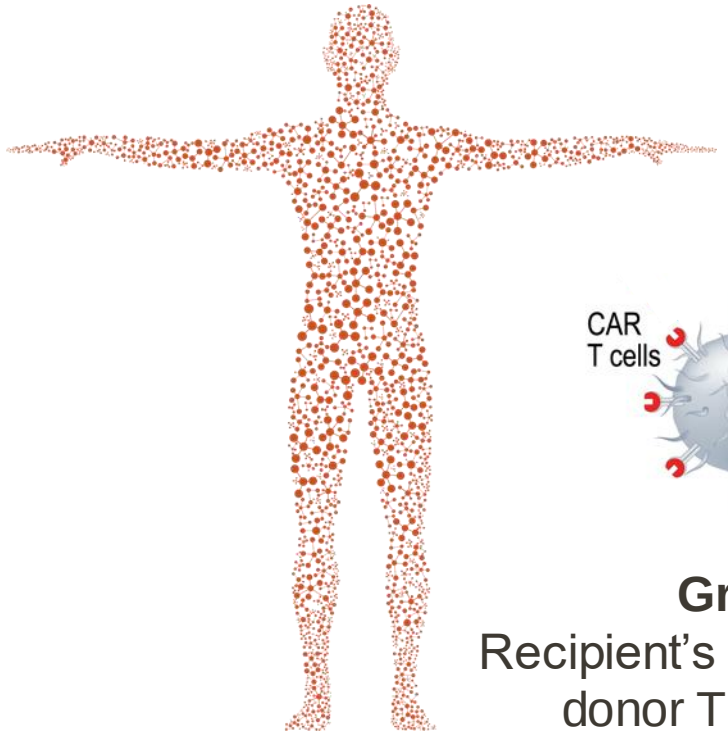
Speed/Reliability

- ”Off the shelf” for on demand treatment
- Less product variability, made from healthy T cells

Innovation

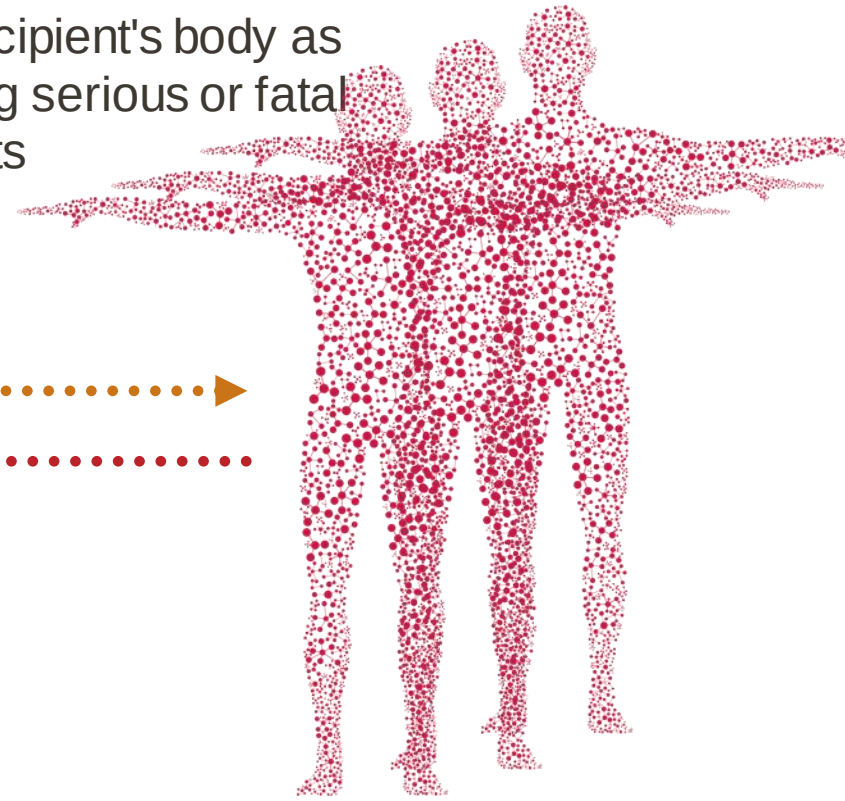
- Multiplex gene engineering/editing capabilities
- Opportunity for product optimization

Defying Immunity: Overcoming GvHD and Graft Rejection



GvHD

Donor T cells view the recipient's body as foreign and attack causing serious or fatal side effects



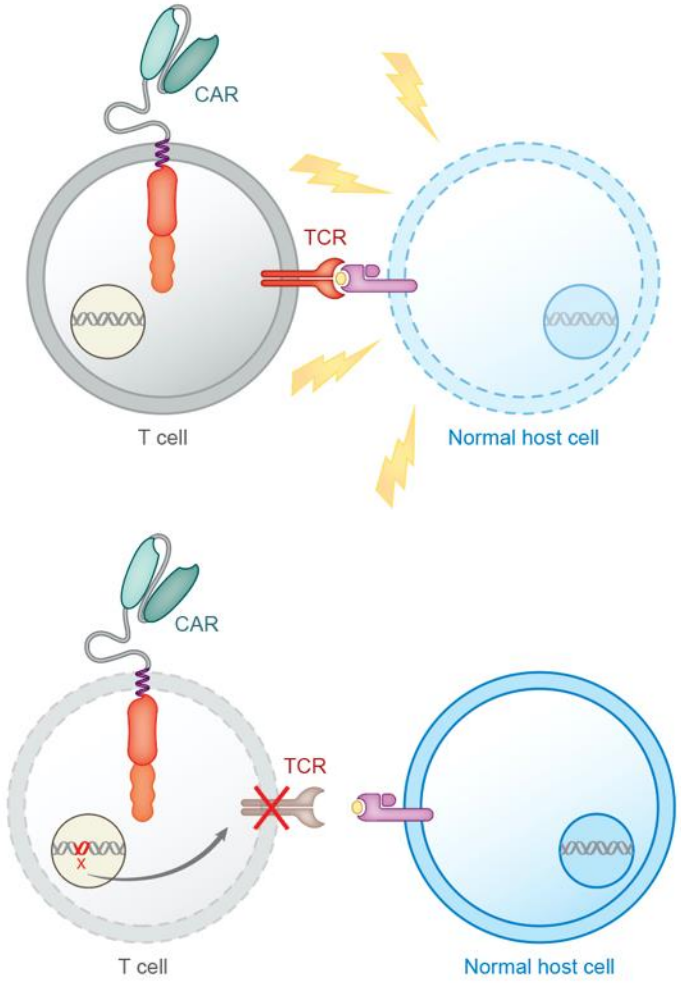
Graft Rejection

Recipient's immune system detects donor T cells as foreign and destroys donor T cells

Allogeneic cell therapy manipulates the fundamental immunological process of Self vs. Non-Self recognition

Allogene THERAPEUTICS

Elimination of TCR in Donor T Cells May Control GvHD



Controlling GvHD

N=21	G1 n (%)	G2 n (%)	G3 n (%)	G4 n (%)	G5 n (%)	All grades n (%)
Acute skin graft-versus-host disease	2 (9.5)	-	-	-	-	2 (9.5)

GvHD confirmed by biopsy in 1 out of 2 cases
Limited to skin rash and resolved with steroids

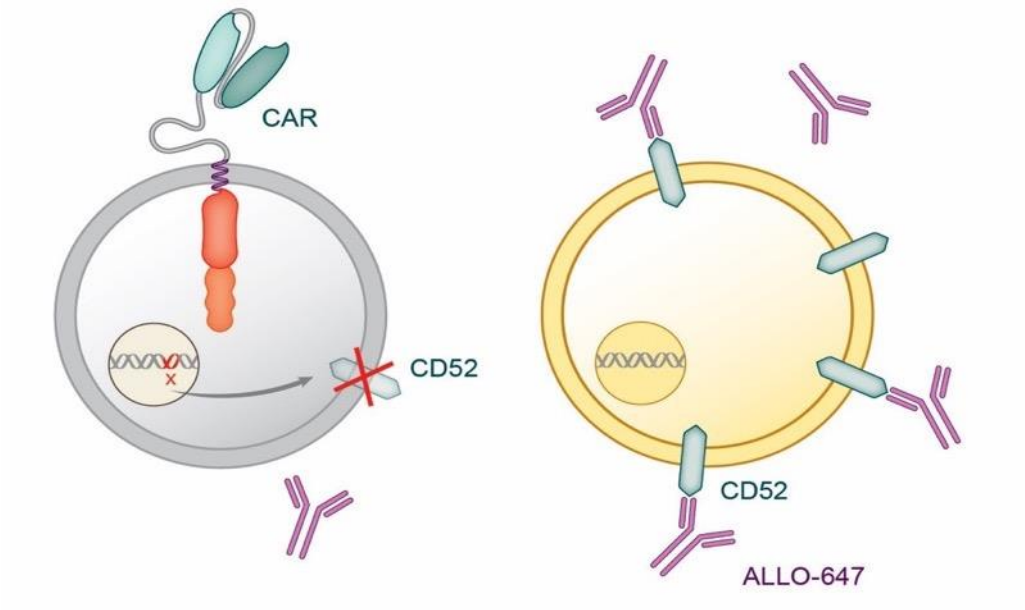
ASH 2018: Preliminary Data on Safety, Cellular Kinetics and Anti Leukemic Activity of UCART19 in Adult and Pediatric Patients with r/r ALL (CALM and PALL Phase 1 Trials)

Allogene THERAPEUTICS

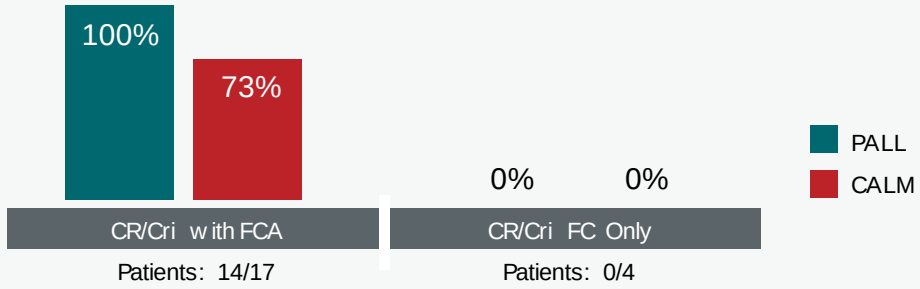
ALLO-647: Selective Lymphodepletion May Delay Graft Rejection

Host T Cell Recovery Delayed by Addition of anti-CD52

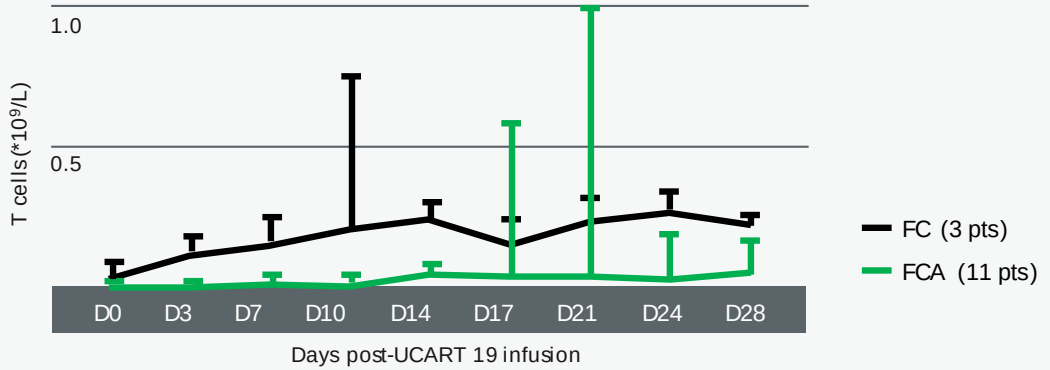
CD52 Edited CAR T cell Recipient T cell expressing CD52



*Creating a Window of AlloCAR T Persistence**



T cell recovery

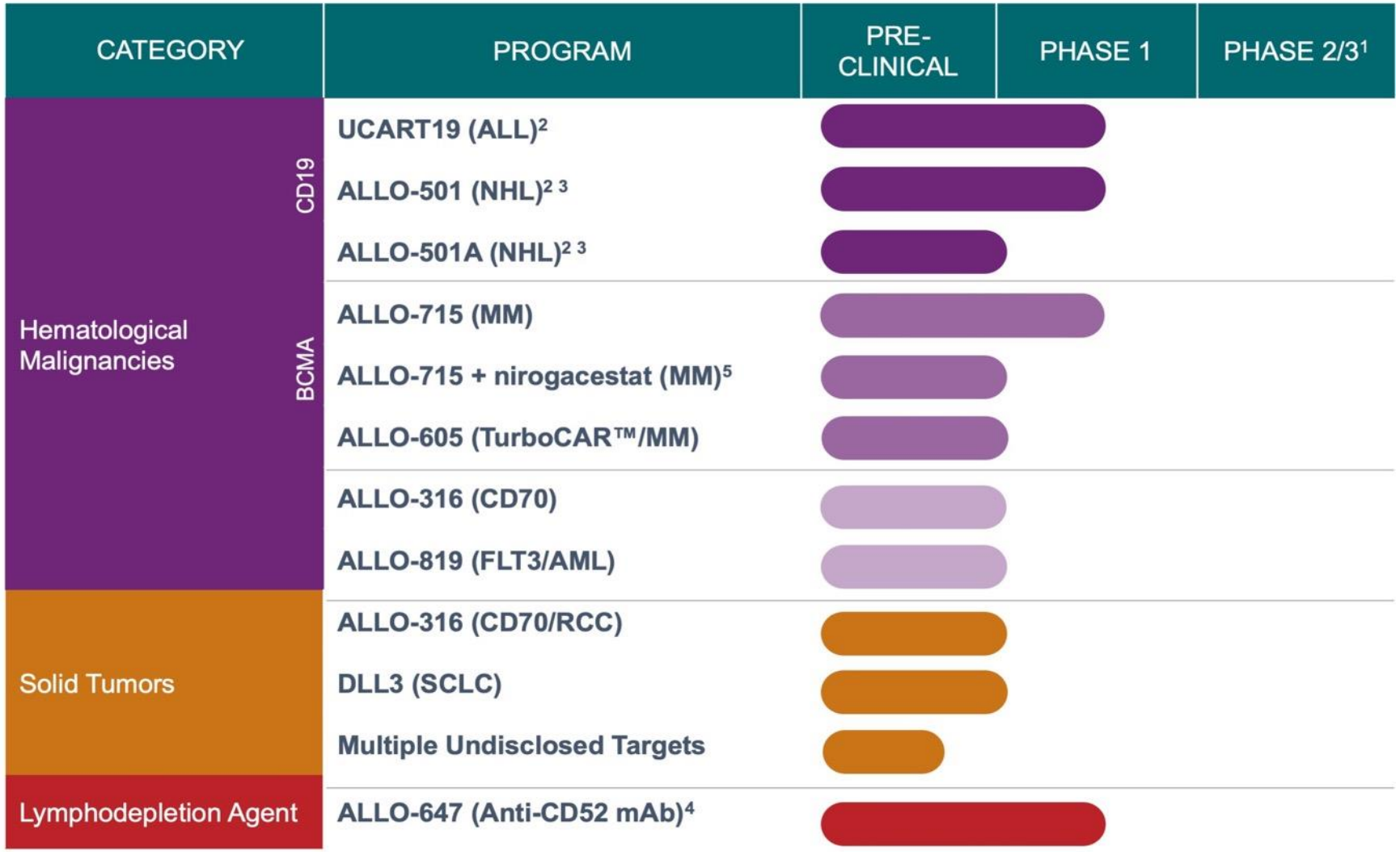


Maximum value of the cell range is plotted from the CALM study

**ASH 2018 ; FCA: Fludarabine, cyclophosphamide & alemtuzumab (anti-CD52 mAb); FC: Fludarabine & cyclophosphamide in Phase 1 clinical trials of UCART19*

Allogene THERAPEUTICS

Deep AlloCAR T™ Pipeline Targeting Vast Array of Tumor Types



[1] *Phase 3 may not be required if Phase 2 is registrational*

[2] *Servier will hold ex-US commercial rights. Servier is the sponsor of the UCART19 trials*

[3] *Allogene is the sponsor of the ALLO-501 trial and expected sponsor of the ALLO-501A trial*

[4] *ALLO-647 intended to enable expansion and persistence of allogeneic CAR T product candidates*

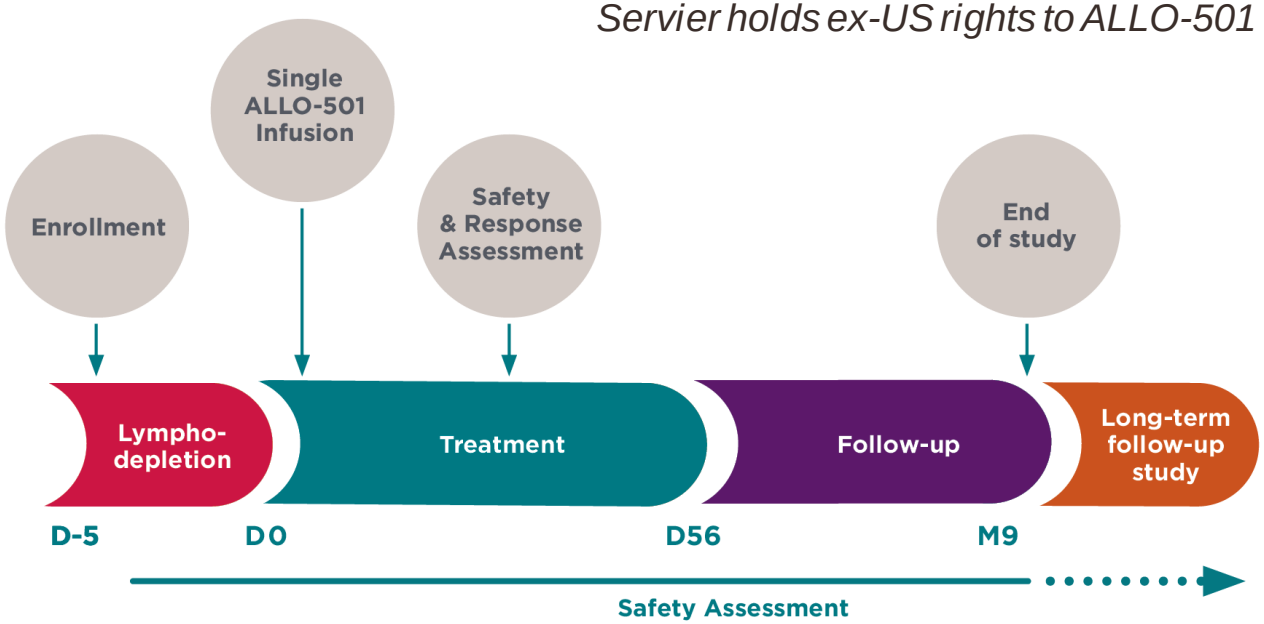
[5] *Allogene sponsored trial in combination with SpringWorks Therapeutics; Initiation expected 2H 2020*

Allogene THERAPEUTICS

ALLO-501: Allogeneic CD19 CAR in R/R NHL

- Primary Objectives:
  - Safety, tolerability and dosing
- Key Secondary Objectives:
  - ALLO-501 cellular kinetics
  - Anti-tumor activity
  - Optimization of lymphodepletion
  - Explore redosing
- Key Eligibility Criteria:
  - R/R large B-cell lymphoma or follicular lymphoma
  - Prior autologous CD19 CAR T therapy allowed
- Initial P1 data expected Q2 2020

Servier holds ex-US rights to ALLO-501

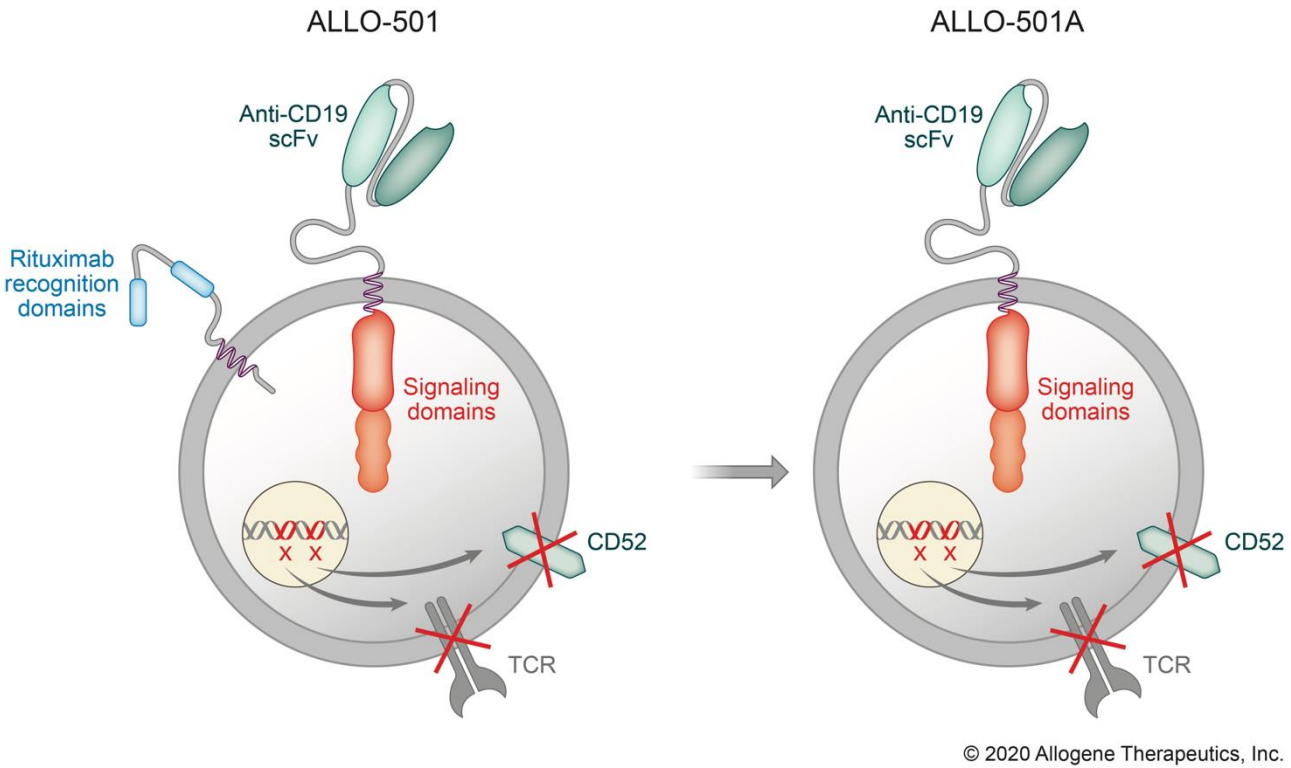


Treatment:
- Dose Escalation: 40, 120, and 360 x 10^6 CAR+ cells

Lymphodepletion:
- ALLO-647: 39 to 90 mg
- Fludarabine: 30 mg/m^2/d x 3 days
- Cyclophosphamide: 300 mg/m^2/d x 3 days

ALLO-501 Transition to Next Generation ALLO501A in R/R NHL

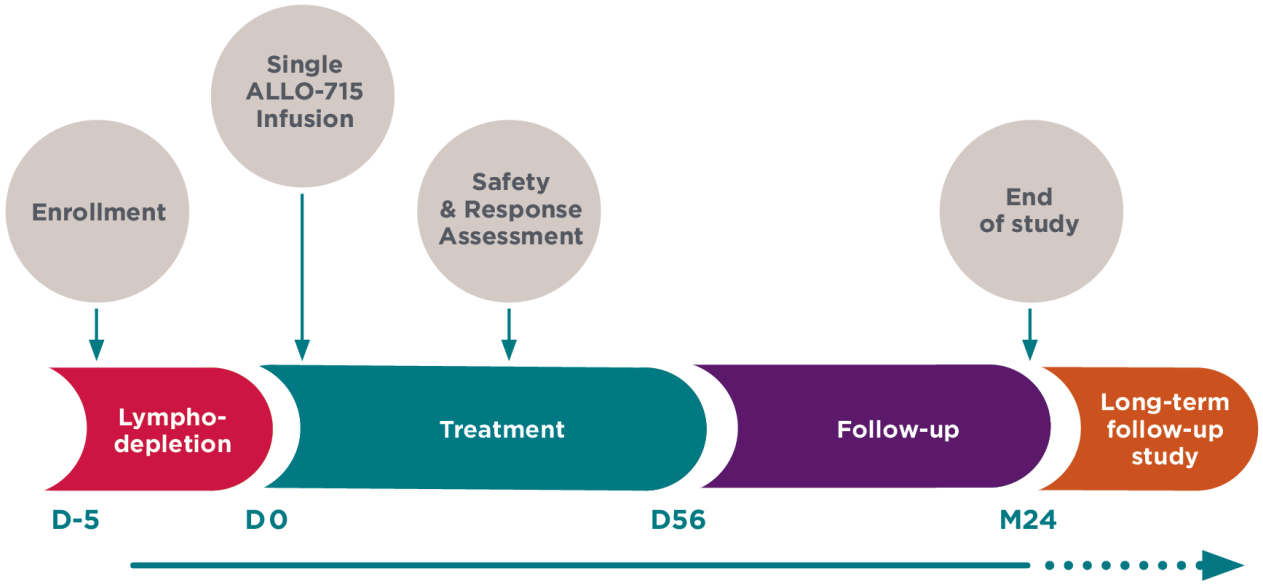
- **ALLO-501A**
  - Next Generation anti-CD19 AlloCAR T intended for Phase 2 Development
  - Eliminates the rituximab recognition domains in ALLO-501, allowing for use in a broader patient population, including those NHL patients with recent rituximab exposure
  - IND cleared by U.S. FDA
  - Initiation of abbreviated Phase 1 Trial expected in Q2 2020



Servier holds ex-US rights to ALLO-501A

ALLO-715: UNIVERSAL Study Targeting BCMA in R/R MM

- Primary Objective:
  - Safety and tolerability
- Key Secondary Objectives:
  - Recommended P2 dose for ALLO-715 and lymphodepletion regimen
  - Anti-tumor activity
- Key Eligibility Criteria:
  - Relapsed/refractory multiple myeloma
  - At least 3 prior lines of MM therapy, including a proteasome inhibitor, immunomodulatory agent, and anti-CD38 antibody
- Initial P1 data expected Q4 2020



Treatment:
- Dose Escalation: 40, 120, 320 X 10^6 CAR+ cells

Lymphodepletion:
- ALLO-647: 39 to 90 mg
- Fludarabine: 30 mg/m^2/d x 3 days
- Cyclophosphamide: 300 mg/m^2/d x 3 days

Exploring Gamma Secretase Inhibition (GSI) in MM

SpringWorks Therapeutics Collaboration

Allogene Sponsored Exploratory Clinical Trial

- **Combination Study:** ALLO-715 with nirogacestat (GSI)
  - Expected start 2H 2020, subject to regulatory clearance
- **Potential Increase Anti-Tumor Efficacy:**
  - Nirogacestat increases BCMA expression in MM cell lines[1]
  - Others have shown a GSI may increase the anti-tumor efficacy of autologous BCMA-directed CAR therapy[2]

NIROGACESTAT

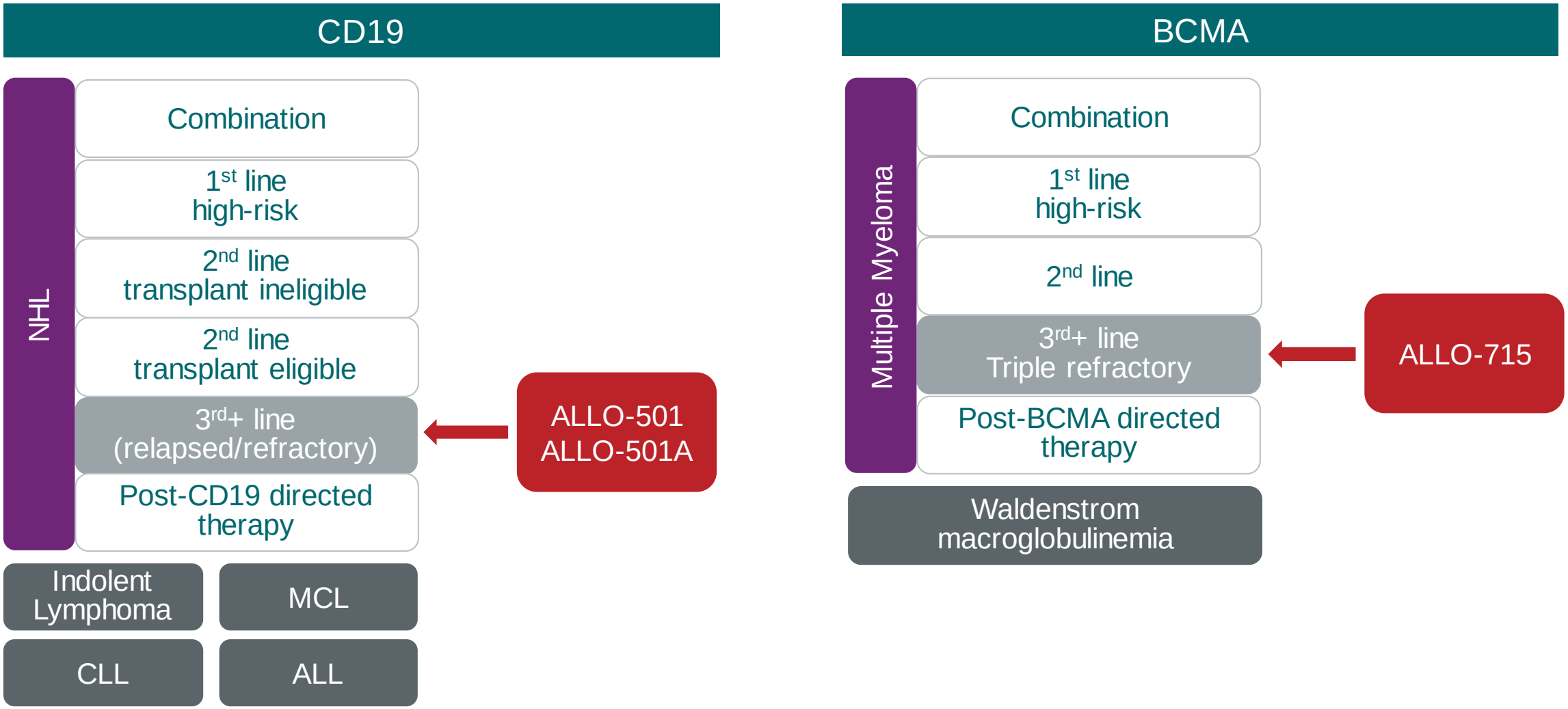
- Orally administered gamma secretase inhibitor (GSI)
- In Phase 3 development for the treatment of desmoid tumors
- Safety demonstrated in 200+ patients

1 Data on File

2 Blood. 2019 Nov7;134(19):1585-1597. doi: 10.1182/blood.2019000050

Allogene THERAPEUTICS

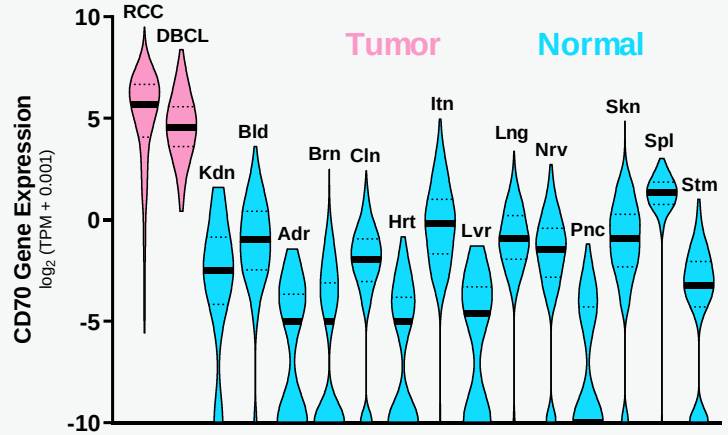
Pathways to Leverage CD19 & BCMA Clinical Expansion

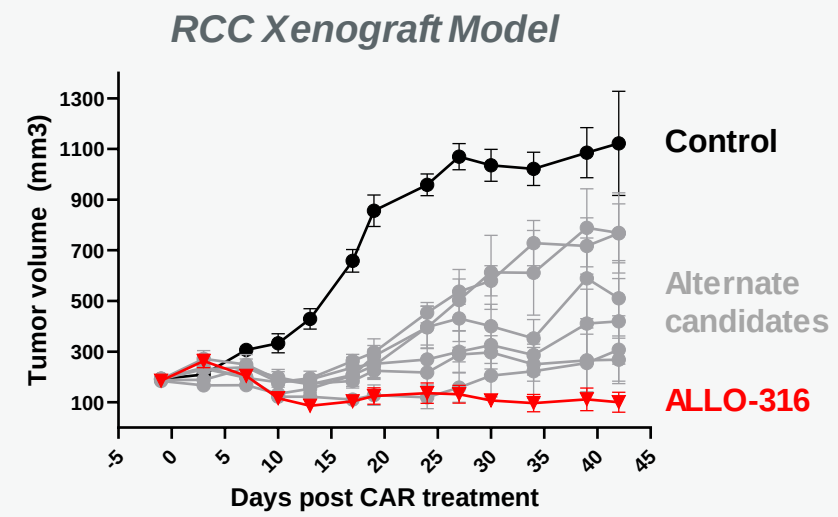


Allogene THERAPEUTICS

ALLO-316 (anti-CD70): The Next AlloCAR T Clinical Candidate

- ALLO-316 is an anti-CD70 AlloCAR T candidate for renal cell carcinoma (RCC) as well as several hematological malignancies
- CD70 expression[1]:
  - RCC (80-100%)
  - AML (96%)
  - DLBCL (71%), MM (63%), CLL (50%)
  - GBM (35%)
  - CD70 is also expressed on activated T cells
- CD70 in RCC:
  - High prevalence with limited 'off tumor' expression
  - Good expression in metastatic disease
- ALLO-316 is associated with minimal or no fratricide
- IND Submission expected by YE 2020





[1] Expert Opin Ther Targets. 2008 Mar; 12(3): 341–351. doi: 10.1517/14728222.12.3.341

Allogene THERAPEUTICS

2020 Clinical Milestones

Creating State-of-the-Art AlloCAR T Manufacturing Capabilities

Current South San Francisco Facility

- Manufacturing process development & optimization
- Analytic methods for in-process characterization & improvement
- Quality Assurance and Quality Control support

East Bay Area Facility (Newark, CA)

- In-house manufacturing capability build underway:
  - GMP manufacturing ready in 2021
- Potential commercial launch upon approval

Current CMO Support

- Dedicated purpose built GMP suite
- Clinical supply manufacturing, formulation & release

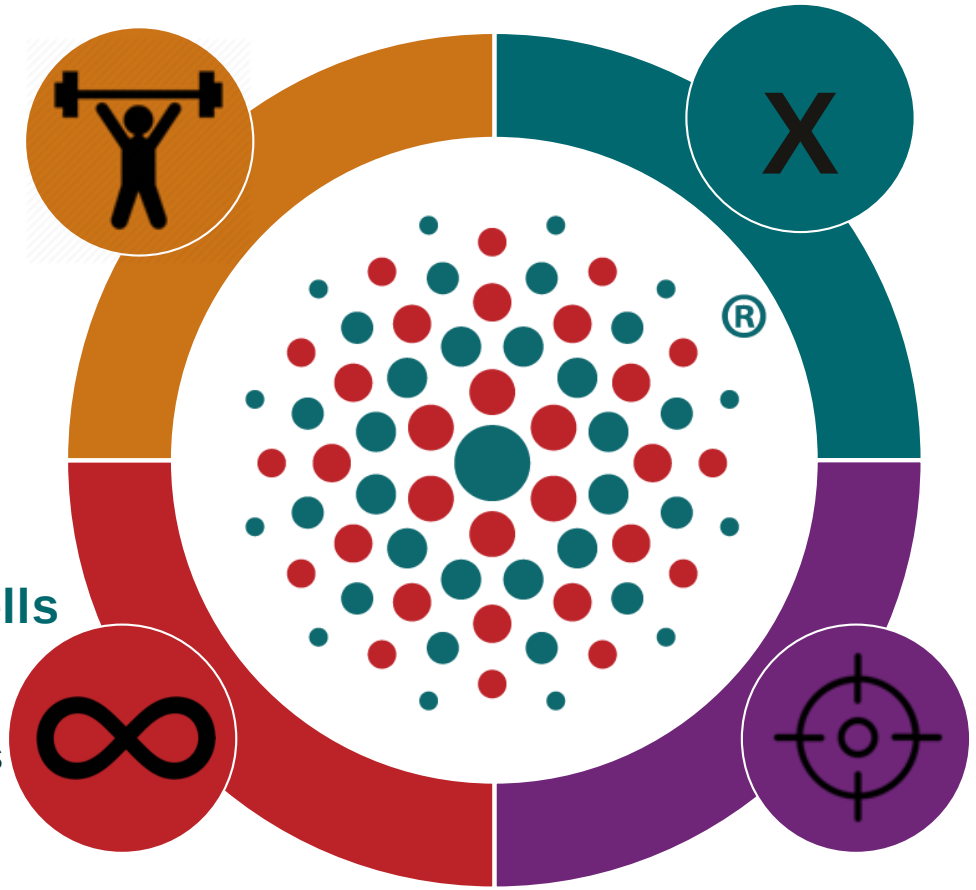
Allogene is Creating The AlloCAR T™ Platform for Tomorrow

Improving T Cell Fitness

- TurboCARs™
- Manufacturing improvement
- Site-specific integration

Induced Pluripotent Stem Cells (iPSCs)*

- Renewable starting cell source
- Master cell bank of engineered iPSCs
- Proprietary T cell differentiation technology



Preventing Graft Rejection

- Enhanced lymphodepletion
- Immune evasion

Expanding Target Repertoire

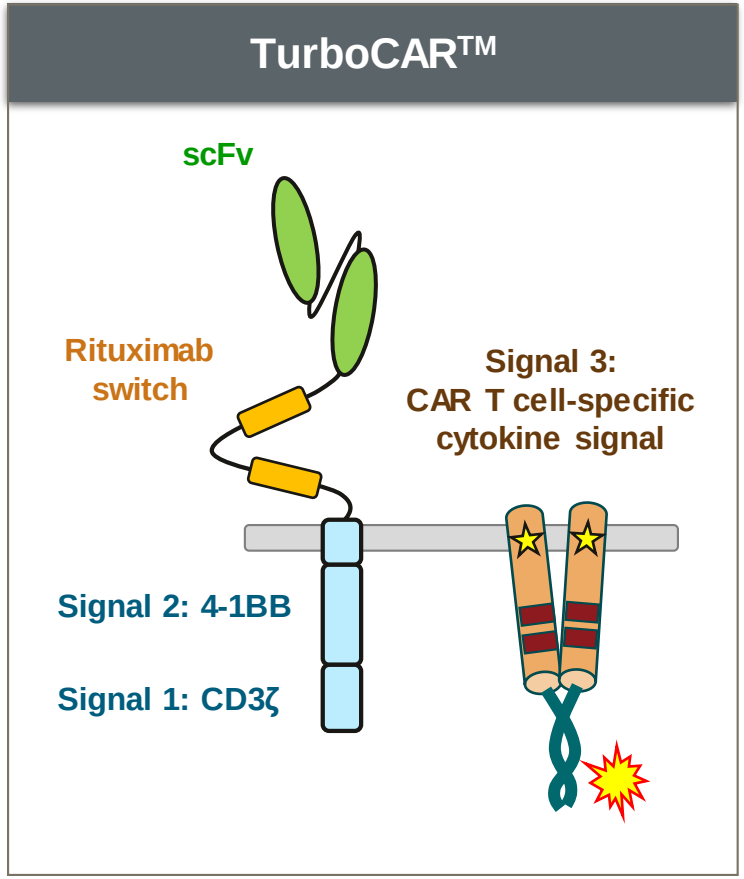
- Target selection/validation
- CAR optimization
- Multi-targeting CARs

In collaboration with Notch Therapeutics

Allogene THERAPEUTICS

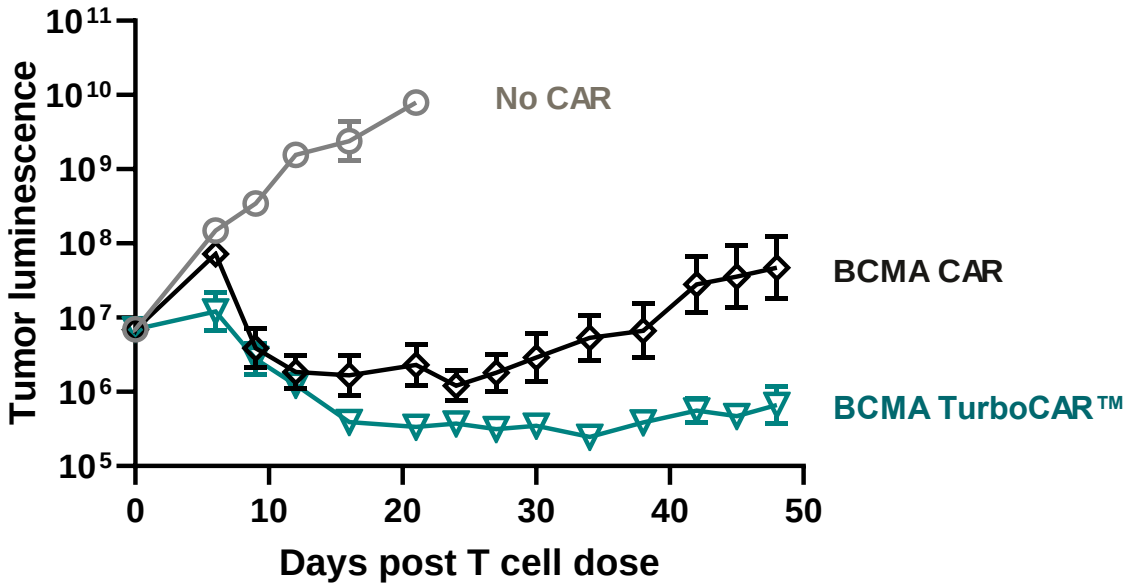
TurboCAR™: Turbocharging CAR T Cells

- Cytokine stimulation can increase the potency and durability of engineered T cells
- TurboCAR™ is designed to recapitulate cytokine signaling selectively in CAR T cells
  - Minimizes systemic toxicity
  - Does not stimulate host immune cells which could reject CAR
  - Delivers survival benefit selectively to CAR T cells
- Opportunities for development include
  - Improving the efficacy of CAR T cells
  - Reducing CAR T cell dose requirement
  - Overcoming exhaustion to enable CAR T therapies for solid tumors

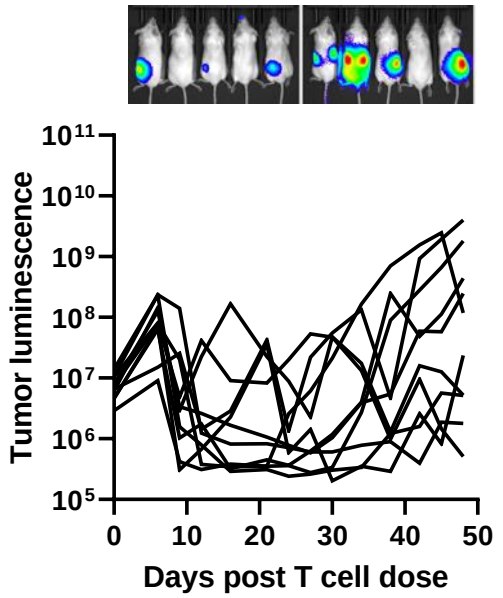


TurboCAR™ May Enhance Anti-Tumor Activity of Conventional CAR T Cells

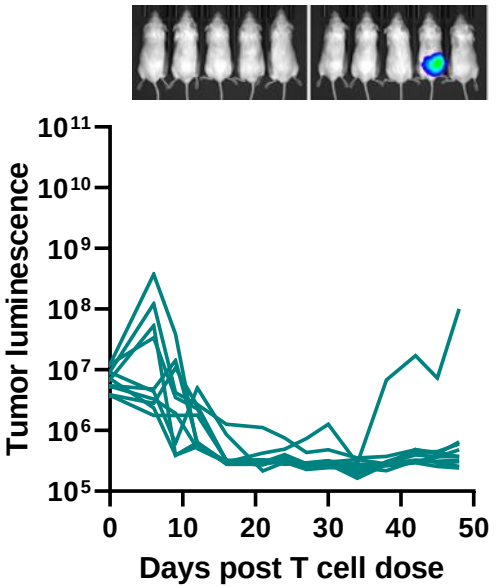
Enhanced Activity and Durability of Response



BCMA CAR



BCMA TurboCAR™

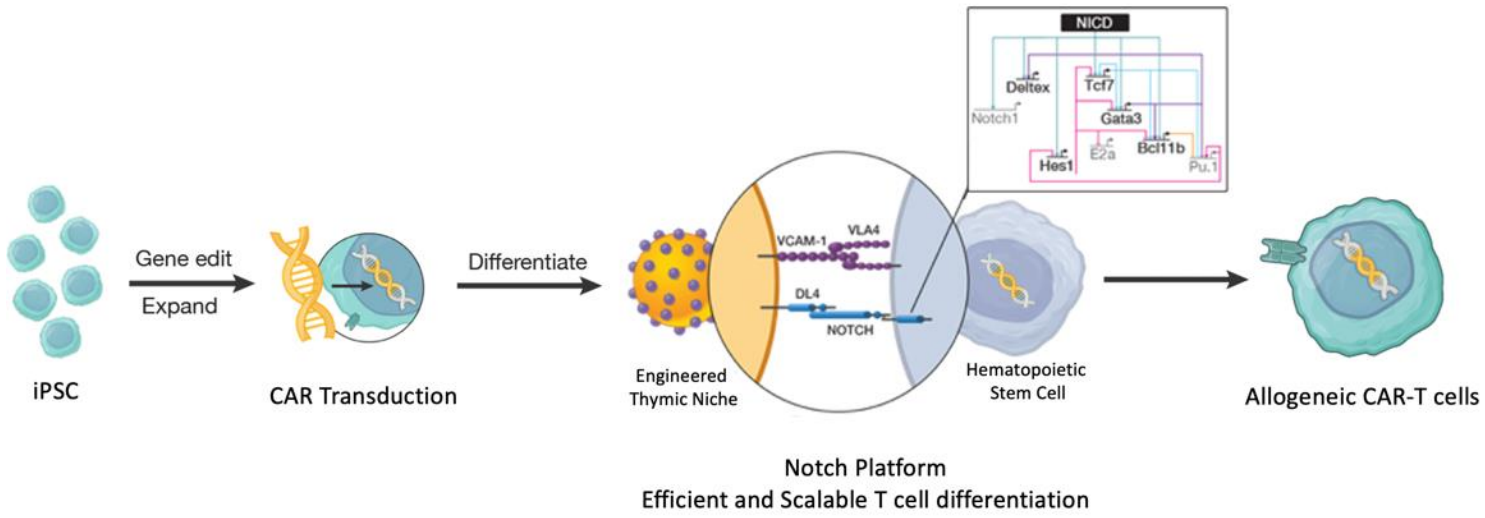


TurboCAR™ shows improved engraftment and persistence, and is less prone to exhaustion in preclinical models

20

iPSCs: The Road to a Renewable Cell Source

Notch Therapeutics Collaboration

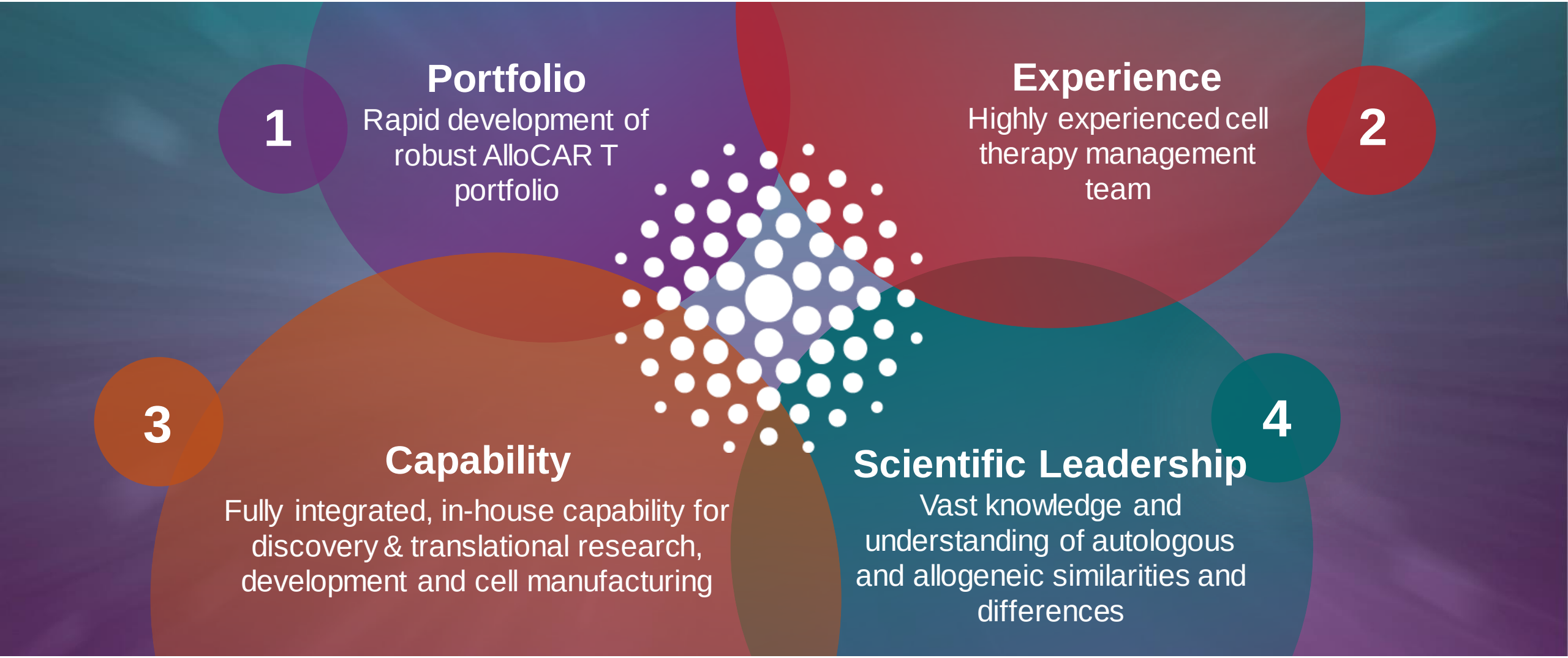


- **Notch proprietary platform** supports scalable, feeder cell-free manufacturing of mature T cells and CAR T engineered cells
- Induced pluripotent stem cells (iPSC) cells can be engineered at the stem cell stage and clonal cell bank can be created

- Exclusive worldwide license agreement to develop iPSC AlloCAR™ products for initial application in NHL, leukemia and MM
- Notch is a recognized leader in the differentiation of iPSCs into T Cells
- Allogene has 25% equity position in Notch

Allogene THERAPEUTICS

Allogene: Leading Today, Creating Tomorrow in Allogeneic Cell Therapy



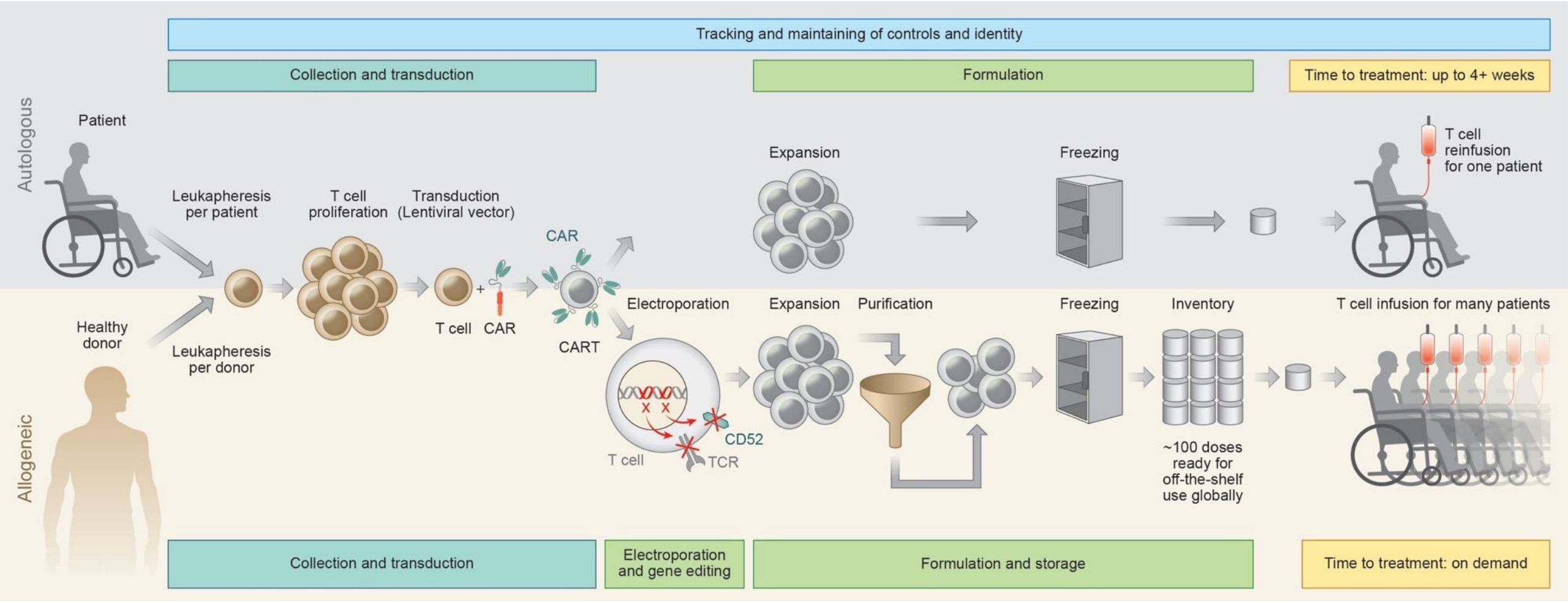
Allogene THERAPEUTICS


Allogene
THERAPEUTICS
The Next Revolution in Cell Therapy
Leading Today, Creating Tomorrow

The Road to New Modality Innovation

NEW MODALITY	RECOMBINANT GROWTH FACTORS	MONOCLONAL ANTIBODIES	GENE THERAPY	CELL THERAPY (CAR T)
FIRST APPROVAL	Humalin (1982)	Othoclone (1986)	Glybera (2012)	Kymriah (2017)
FOLLOW-ON INNOVATION	Post-translational modifications	Humanization techniques	Improved AAV manufacturing	Gene editing
NEXT GENERATION LEADERS	Lantus, Neulasta, Aranesp	Humira, Avastin, Herceptin	Luxturna, Zolgensma	Allogeneic therapies

On Demand AlloCAR T™ Therapies

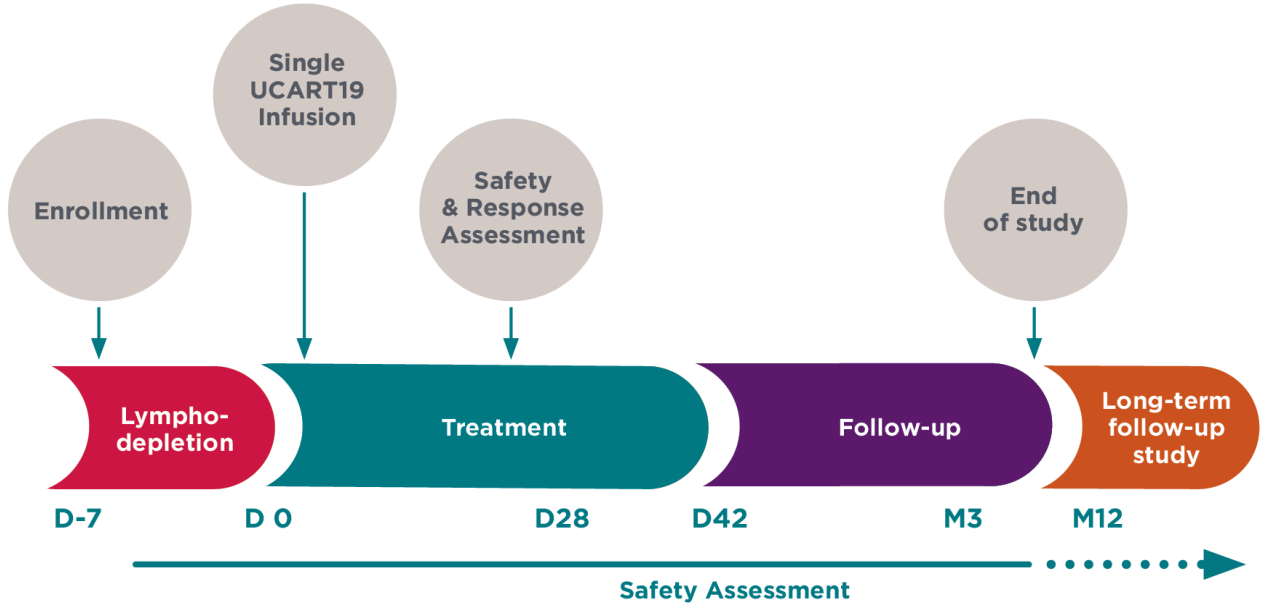


Allogene THERAPEUTICS

UCART19: PALL & CALM Studies Targeting CD19 R/R ALL

Servier Sponsored: Servier holds ex-US rights to UCART19

- Objectives:
  - Primary: Safety and tolerability
  - Secondary: Anti-leukemic activity
  - Exploratory: UCART19 expansion and persistence
- PALL (Pediatric) ongoing:
  - n= 7 treated with 2 x 10^7 total cells
- CALM (Adult) dose escalation ongoing:
  - n= 6 treated at DL1 (6 x 10^6 total cells)
  - n= 6 treated at DL2 (6 to 8 x 10^7 total cells)
  - DL3 (1.8 to 2.4 x 10^8 total cells) ongoing



ASH 2018

- Fludarabine: 90 mg/m^2 for adults; 150 mg/m^2 for pediatrics
- Cyclophosphamide: 1500 mg/m^2 for adults; 120mg/kg for pediatrics
- Anti-CD52 mAb: 1 mg/kg both adults and pediatrics

Allogene THERAPEUTICS

UCART19: 82% CR/CRi with FCA Lymphodepletion

Trial	Patients Enrolled & Treated	CR/CRi with FCA	CR/CRi with FC only	CR/CRi Overall
PALL	7	100% (6/6)	0% (0/1)	86% (6/7)
CALM	14	73% (8/11)	0% (0/3)	57% (8/14)
Pooled	21	82% (14/17)	0% (0/4)	67% (14/21)

ASH 2018 ; FCA: Fludarabine, cyclophosphamide & alemtuzumab (anti-CD52 mAb); FC: Fludarabine & cyclophosphamide ***ASH 2018***

- UCART19 expansion observed in 15/17 patients with FCA and 0/4 patients with FC only
- Allogene will use its Proprietary anti-CD52 mAb (ALLO-647) for AlloCAR T™ Programs

UCART19 Proof of Concept: Ph1 AE Profile in PALL & CALM R/R ALL

N=21	n: number of patients with at least one AE by worst grade	G1 n (%)	G2 n (%)	G3 n (%)	G4 n (%)	G5 n (%)	All grades n (%)
AEs related to UCART19							
Cytokine release syndrome		4 (19.0)	12 (57.1)	2 (9.5)	1* (4.8)	-	19 (90.5)
Neurotoxicity events		7 (33.3)	1 (4.8)	-	-	-	8 (38.1)
Acute skin graft-versus-host disease **		2 (9.5)	-	-	-	-	2 (9.5)
AEs related to lymphodepletion and/or UCART19							
Viral infections †		1 (4.8)	2 (9.5)	4 (19.0)	1 (4.8)	-	8 (38.1)
Prolonged cytopenia***		-	-	-	6 ‡ (28.5)	-	6 (28.5)
Neutropenic sepsis					1 (4.8)	1* (4.8)	2 (9.5)
Febrile neutropenia/ septic shock						1 (4.8)	1 (4.8)
Pulmonary hemorrhage						1‡ (4.8)	1 (4.8)

No moderate/severe acute GvHD, no severe neurotoxicities, mainly moderate CRS

* 1 DLT at DL1 related to UCART19: G4 CRS associated with G5 neutropenic sepsis (death at D15 post-infusion)
** GvHD confirmed by biopsy in 1 out of 2 cases
*** Persistent Grade 4 neutropenia and/or thombocytopenia beyond Day 42 post UCART19 infusion, except if >5% bone marrow blasts
‡ 1 DLT at DL2 related both to UCART19 and LD: G4 prolonged cytopenia associated with infection and pulmonary hemorrhage (death at D82 post-infusion)
† Viral infections: CMV, ADV, BK virus, metapneumovirus

ASH 2018

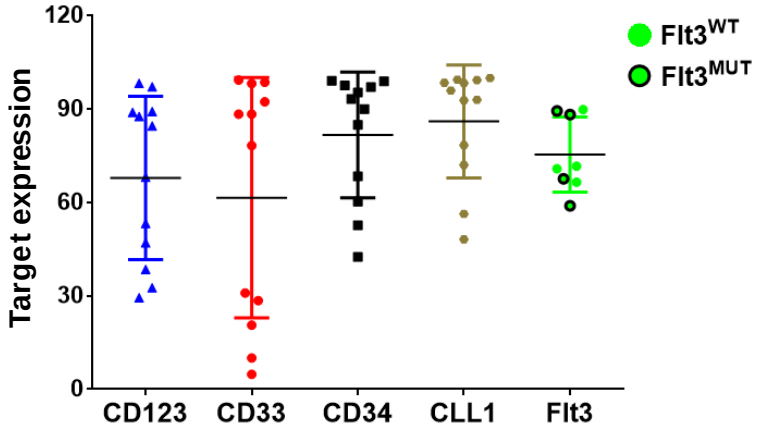
Allogene THERAPEUTICS

ALLO-819: FLT3 CAR T for Acute Myeloid Leukemia (AML)

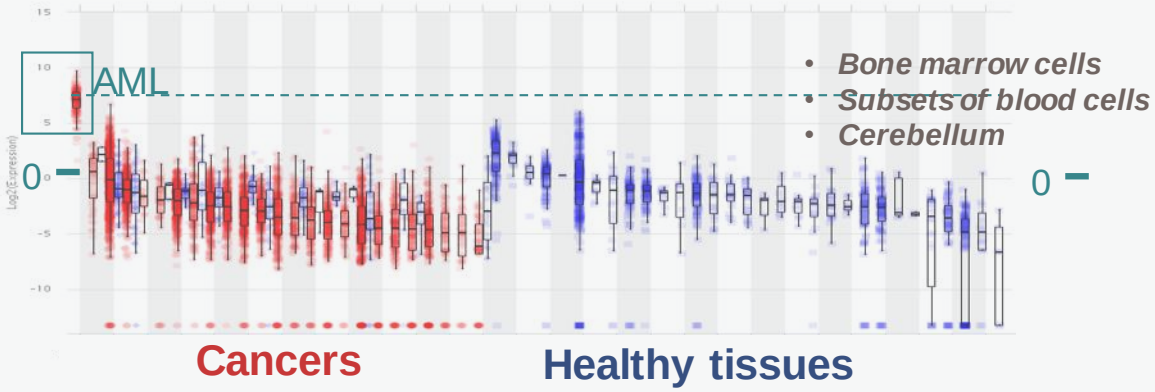
AML is a high unmet medical need with limited treatment options

- Cancer of hematopoietic progenitor cells most common in adults
- Lower survival rate of all hematological malignancies (5-year OS < 28%)
- Majority of patients relapse, novel therapies are urgently needed

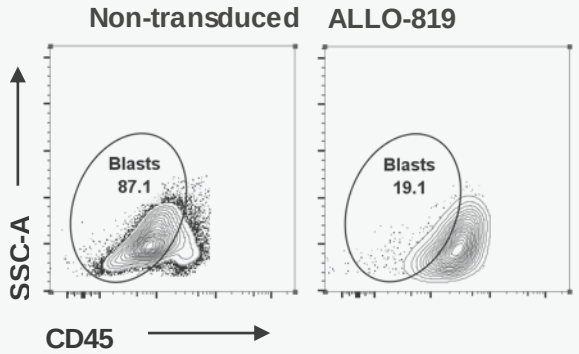
FLT3 is Present on a High Proportion of Primary AML Samples

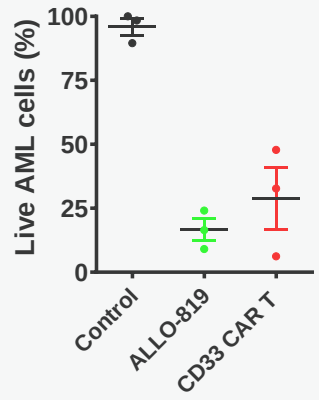


Most Favorable RNA Expression Profile of Four Most Commonly Investigated AML Targets



ALLO-819 Depletes Primary AML Blasts Ex Vivo





- Primary AML cells vs. TCR KO CAR Ts, 1:1 (E:T); 48-h killing assay

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DLL3 for Small Cell Lung Cancer (SCLC)

DLL3 reported to have a role in tumorigenesis

- Outside of the developing embryo, minimal to no surface expression in normal tissue

DLL3 expression[1]:

- Small cell lung cancer (80%)
- Low grade gliomas (90%) & GBM (70%)
- Bladder (57%) & Prostate (24%)
- Testicular cancer (90%)

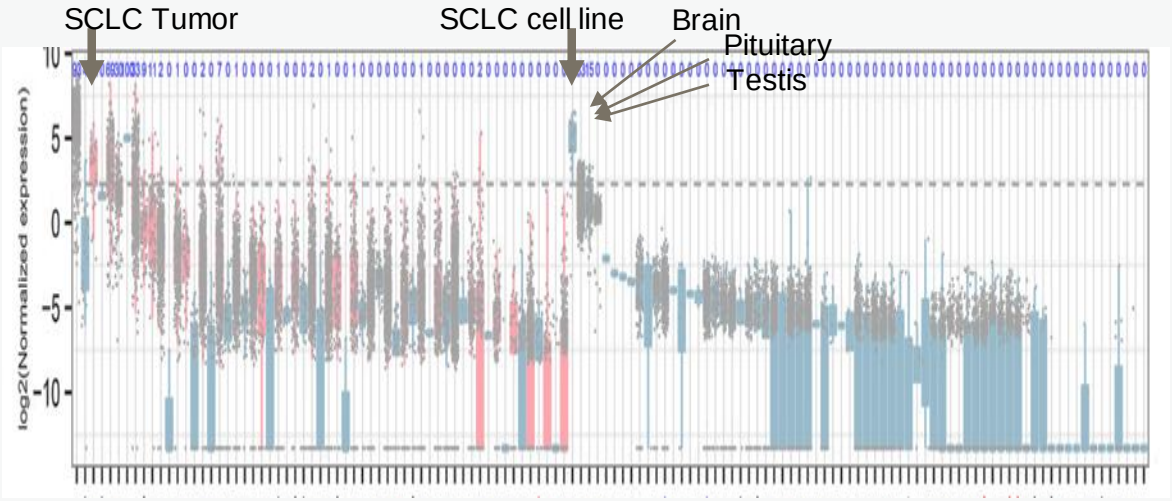
Candidate CARs chosen from several Abs targeting different regions of the protein

- Two protein domains identified with superior CAR T activity

Toxicology program ongoing

- Investigating toxicity using mouse cross-reactive CARs

DLL3 RNA Expression High in Tumor and Normal Tissue



[1]Rova-T; SC16LD6.5; Saunders et al. 2015 Sci Transl Med 7:302ra136

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