Allogene:

Leading the Next Revolution in Cell Therapy

December 2019

Allogene THERAPEUTICS

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: (i) the success and timing of our product development activities and initiating clinical trials, (ii) the success and timing of our collaboration partner's ongoing and planned clinical trials, (iii) our ability to obtain and maintain regulatory approval of any of our product candidates, (iv) our plans to research, discover and develop additional product candidates, including by leveraging next generation technologies and expanding into solid tumor indications, (v) our ability to establish manufacturing capabilities, and our and our collaboration partner's ability to manufacture our product candidates and scale production, and (vi) our ability to meet the milestones set forth herein. 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-Q for the period ended September 30, 2019 filed with the SEC.

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.

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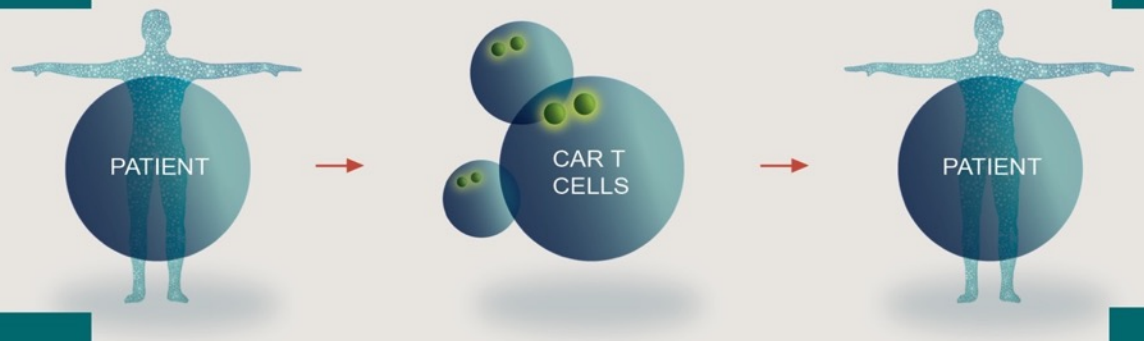
Autologous CAR T: Learning from the First Revolution

LENGTHY VEIN-TO-VEIN TIME

- Undesirable wait time in patients with poor prognosis
- Not all indicated patients may receive therapy

HIGH PRODUCTION COST

- Complicated logistics and inefficiency of scale
- Limited availability



VARIABLE POTENCY

- Compromised T cells in patients may affect product potency
- Such variability may cause unpredictable treatment outcome

MANUFACTURING FAILURES

- No ability to create inventory in individualized therapy
- Retreatment can be difficult due to limited patient starting material

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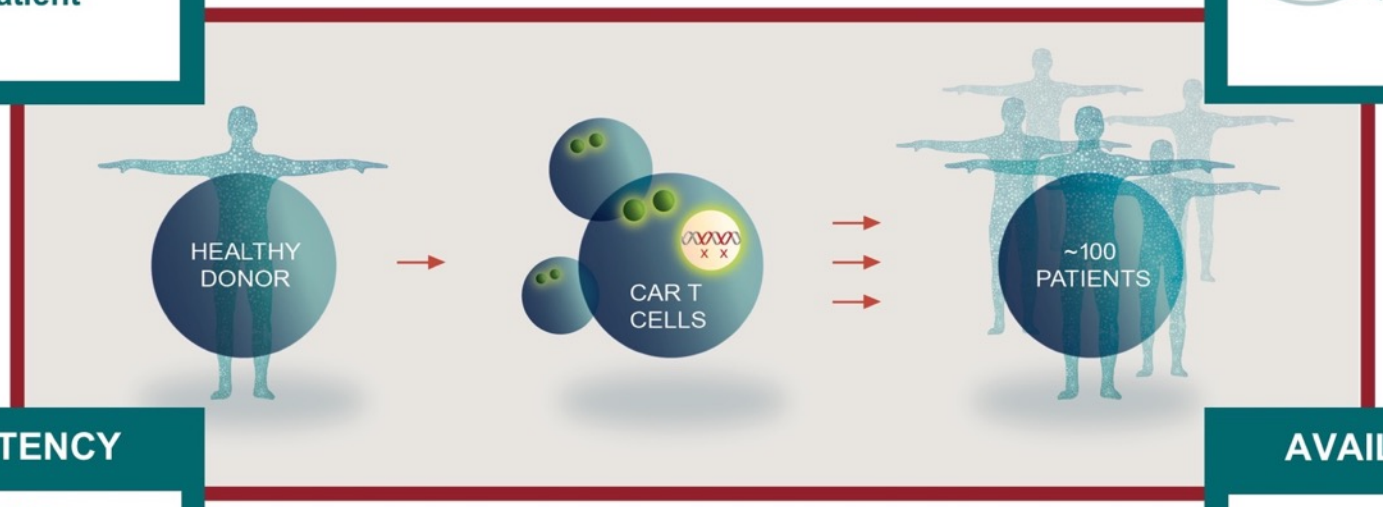
Allogeneic CAR T Therapy: The Next Potential Breakthrough

SPEED TO PATIENT

- Product delivery on demand from inventory
- Faster time to treatment may improve patient outcomes

EFFICIENCIES

- Potential to treat ~ 100 patients from a single manufacturing run
- Ability to scale production to further reduce cost



ENHANCED CELL POTENCY

- More uniform starting materials sourced from healthy donors
- Potential for more predictable safety and efficacy

AVAILABILITY AND ACCESS

- "Off-the-shelf" product enables creation of inventory
- Potential to treat all eligible patients
- Retreatment ease

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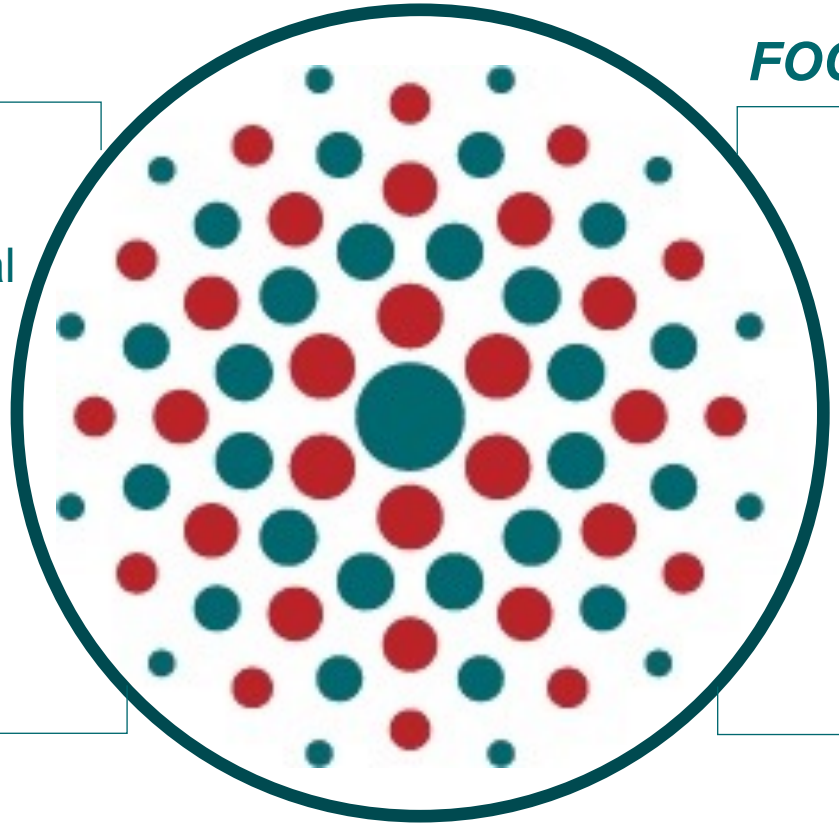
Allogene: Leading the Future of AlloCAR T™ Cell Therapy

UNIQUE EXPERIENCE

Deep understanding of CAR T manufacturing needs and notable success piloting a CAR T to approval

FOCUSED ALLOGENEIC PLATFORM

Technology platform focused 100% on bringing AlloCAR T therapy to patients



STRONG FOUNDATION

Strong balance sheet, expansive portfolio and knowledgeable team across all key functions

PATH TO APPROVAL

Experience in designing CAR T studies to potentially accelerate AlloCAR T™ development

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Allogene Today: Creating the Future of AlloCAR T™ Cell Therapy

Allogene THERAPEUTICS

The Allogene Leadership Team

Arie Belldegrun, M.D., FACS
Executive Chairman & Co-Founder

David Chang, M.D., Ph.D.
President, CEO & Co-Founder

Eric Schmidt, Ph.D.
Chief Financial Officer

Alison Moore, Ph.D.
Chief Technical Officer

Rafael Amado, M.D.
EVP, R&D and Chief Medical Officer

Christine Cassiano
Chief Communications Officer

Barbra Sasu, Ph.D.
Chief Scientific Officer

Susie Jun, M.D., Ph.D.
Chief Development Officer

Veer Bhavnagri
General Counsel

David Tillett, Ph.D.
Head of Quality

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Allogene's Strategy: Focused Development of AlloCAR T™ Cell Therapy

DIFFERENTIATION	NEAR-TERM	FAST-FOLLOW	LONG-TERM
Build state-of-the-art gene engineering and cell manufacturing capabilities	Capitalize on validated target and first-mover advantage in anti-CD19 AlloCAR T™ candidates	Expand leadership position within hematologic indications including Multiple Myeloma and AML	Leverage next generation technologies and expand into solid tumor indications with high unmet need
(Sustainability)	*(Leadership)*	*(Advantage)*	*(Innovation)*

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Current Manufacturing Capabilities & Planned Expansion

Current South San Francisco Facility

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

Planned East Bay Area Facility (Newark, CA)

- 118,000 sq./ft facility planned
- In-house manufacturing capability build underway:
  - GMP manufacturing for clinical supply
  - Potential commercial launch upon approval

Current CMO Support

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

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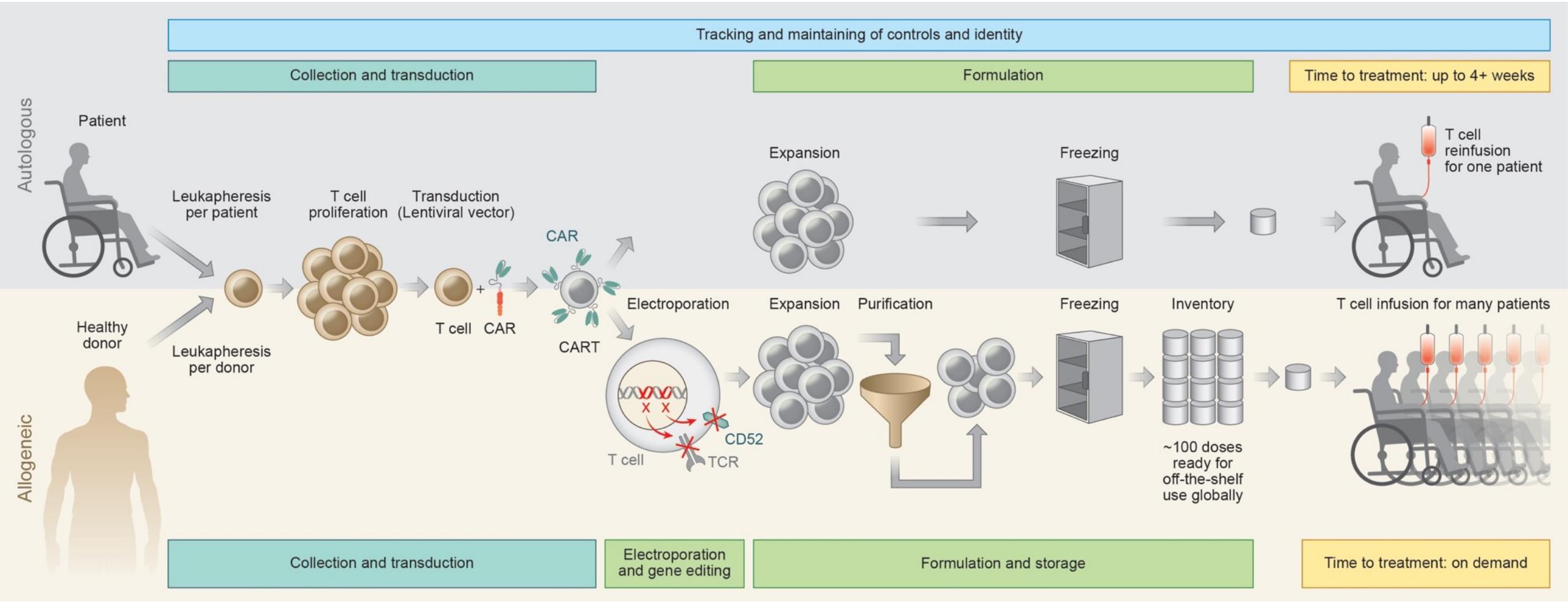
AlloCAR T™ Cells Will Be Available On Demand



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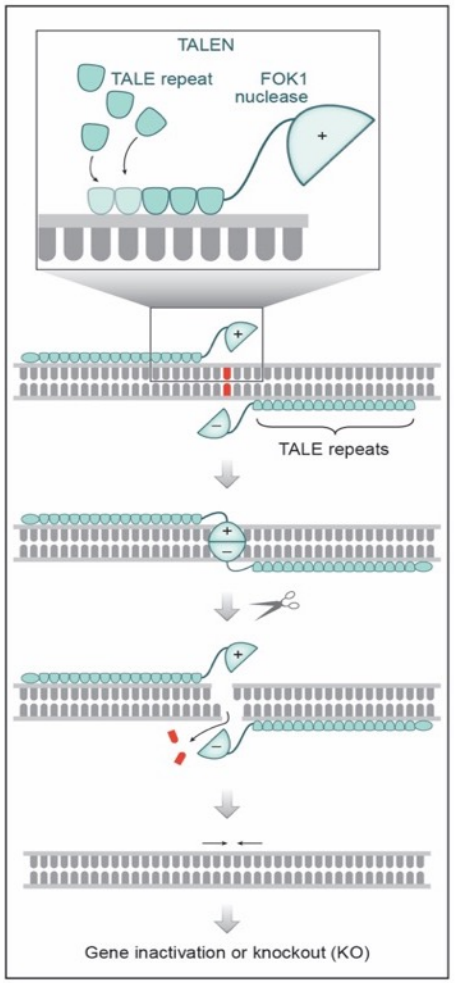
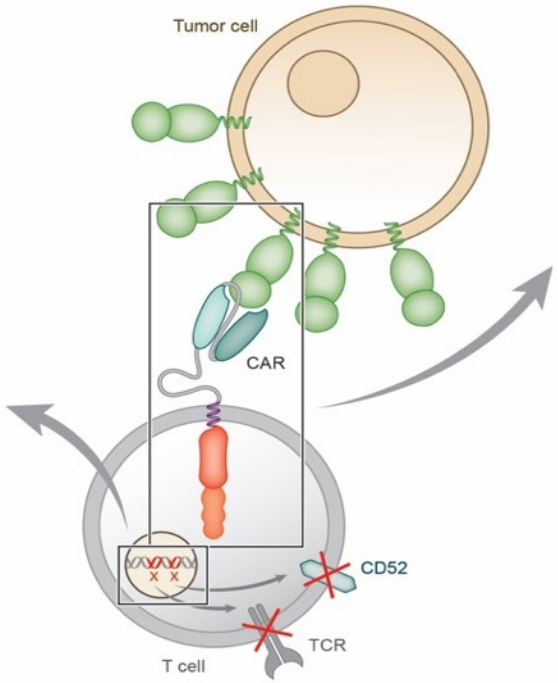
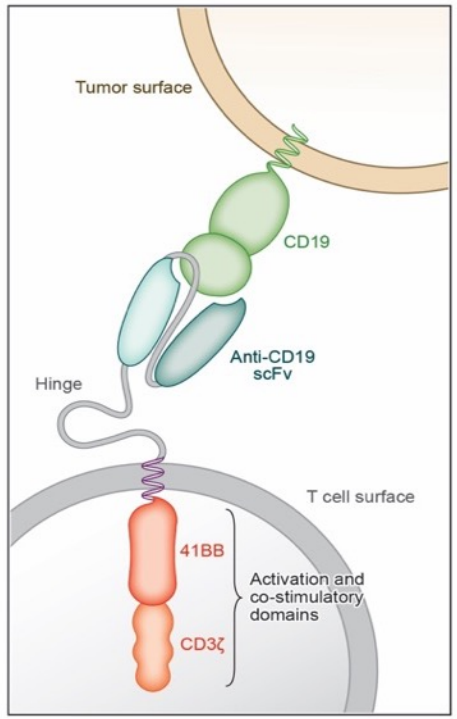
UCART19: The First AlloCAR T™ in Clinical Development



Gene editing
TALEN® Nuclease



Allogeneic
CAR T cell



CD19 CAR for
tumor recognition

TALEN® is a Cellectis gene editing technology

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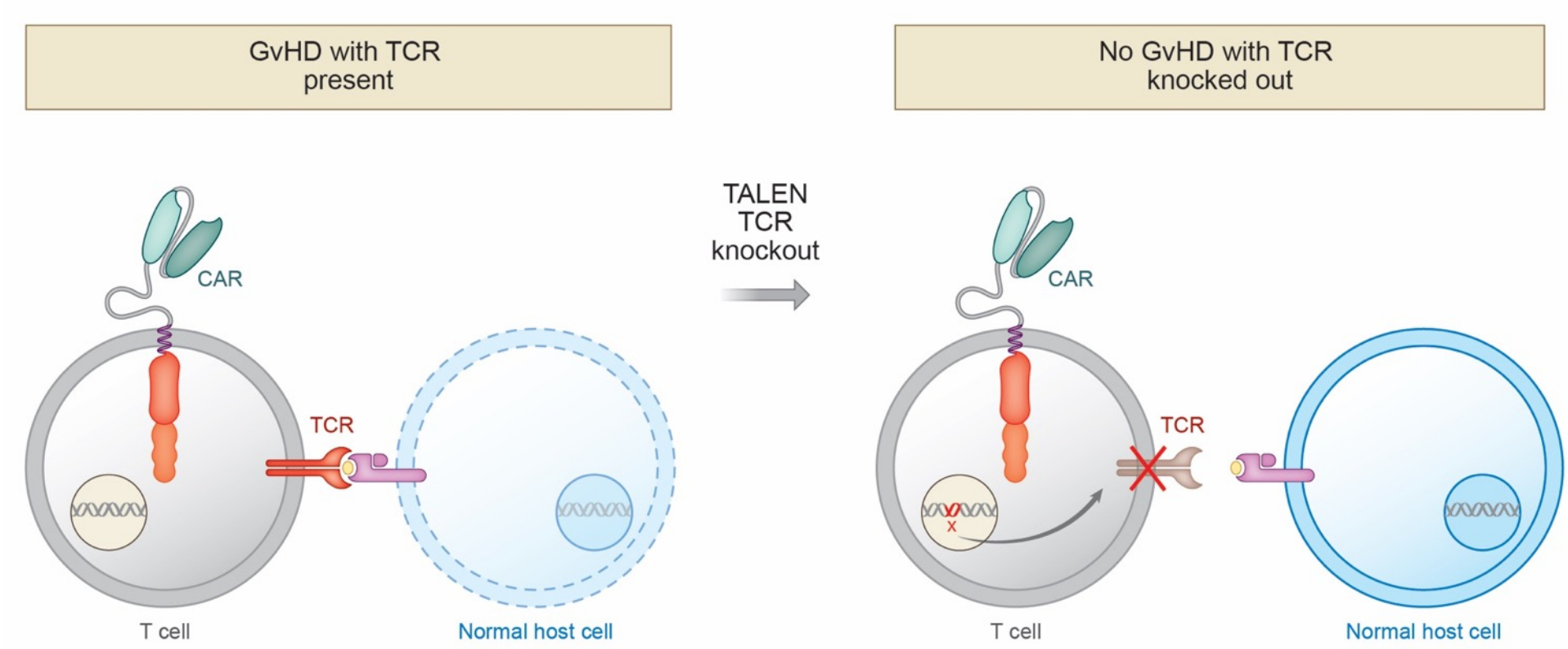
Controlling Graft-vs-Host Disease (GvHD) Reaction



- GvHD: a potentially serious complication where allogeneic cells (“the graft”) attack the patient’s healthy cells (“the host”)
- Risk of GvHD can be reduced by inactivating T cell receptors (TCR)
- Mild cases of Grade 1 acute GvHD reactions limited to skin observed with UCART19 in ongoing clinical studies (ASH 2018)

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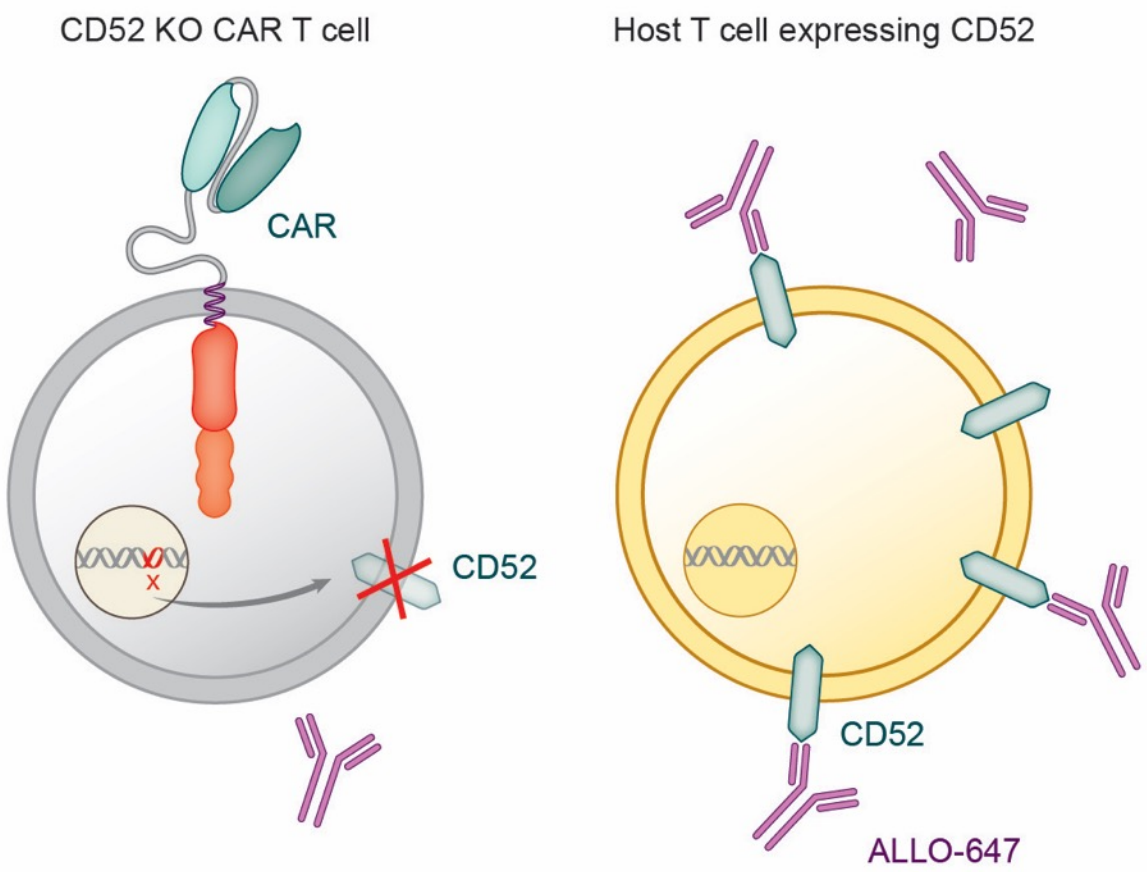
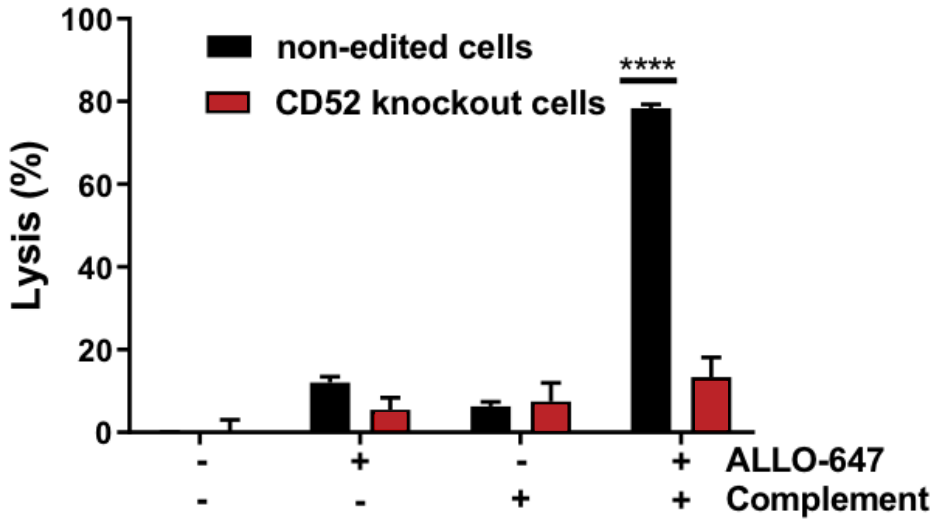
Creating a Window of Persistence



Allogeneic CAR T cells lacking CD52 will not be eliminated by ALLO-647 (anti-CD52 mAb)

Anti-CD52 mAb (ALLO-647) intended to reduce the likelihood of the patient's immune system from rejecting AlloCAR T™ cells



BCMA CAR T cells knocked out for CD52 are resistant to ALLO-647 in a complement-dependent cytotoxicity assay

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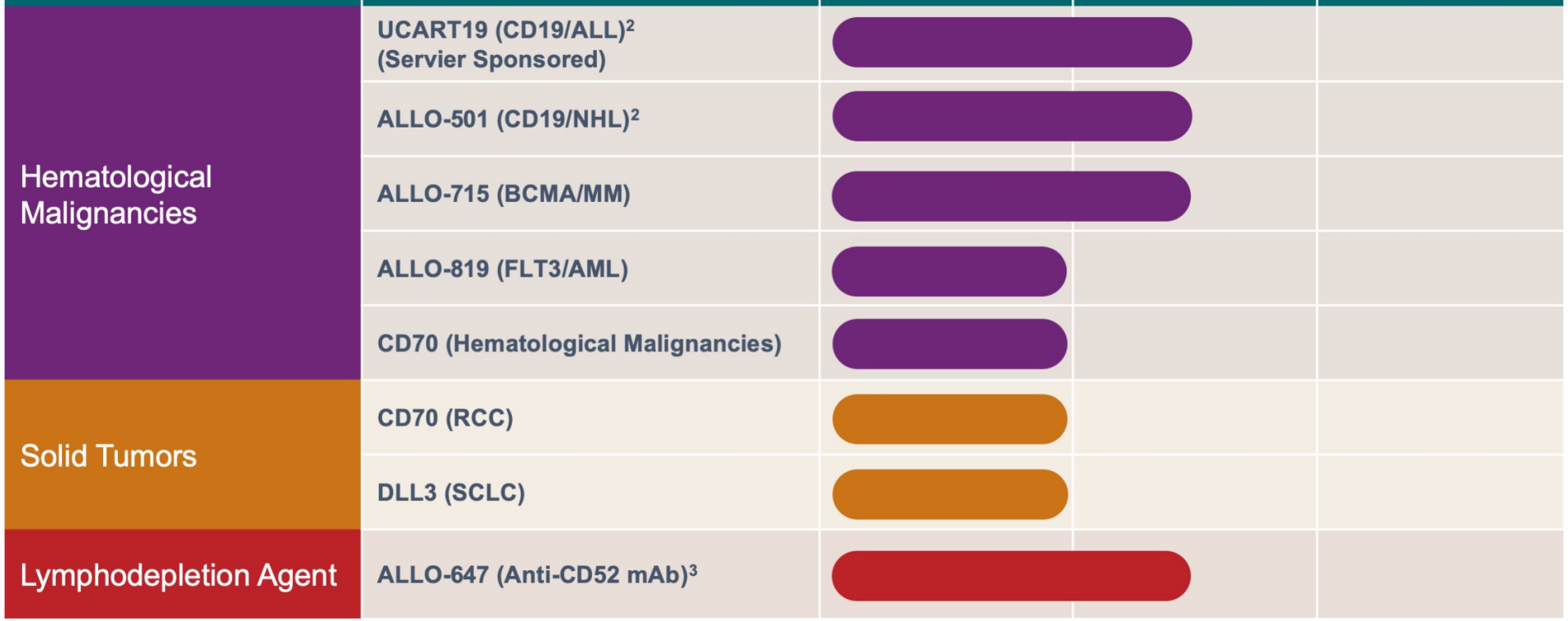
Deep AlloCAR T™ Pipeline Targeting Vast Array of Tumor Types

CATEGORY	PROGRAM	PRE-CLINICAL	PHASE 1	PHASE 2/3[1]
Hematological Malignancies	UCART19 (CD19/ALL)[2] (Servier Sponsored)			
	ALLO-501 (CD19/NHL)[2]			
	ALLO-715 (BCMA/MM)			
	ALLO-819 (FLT3/AML)			
	CD70 (Hematological Malignancies)			
Solid Tumors	CD70 (RCC)			
	DLL3 (SCLC)			
Lymphodepletion Agent	ALLO-647 (Anti-CD52 mAb)[3]			



[1] *Phase 3 may not be required if Phase 2 is registrational*
[2] *Servier holds ex-US commercial rights*
[3] *ALLO-647 intended to enable expansion and persistence of allogeneic CAR T product candidates*

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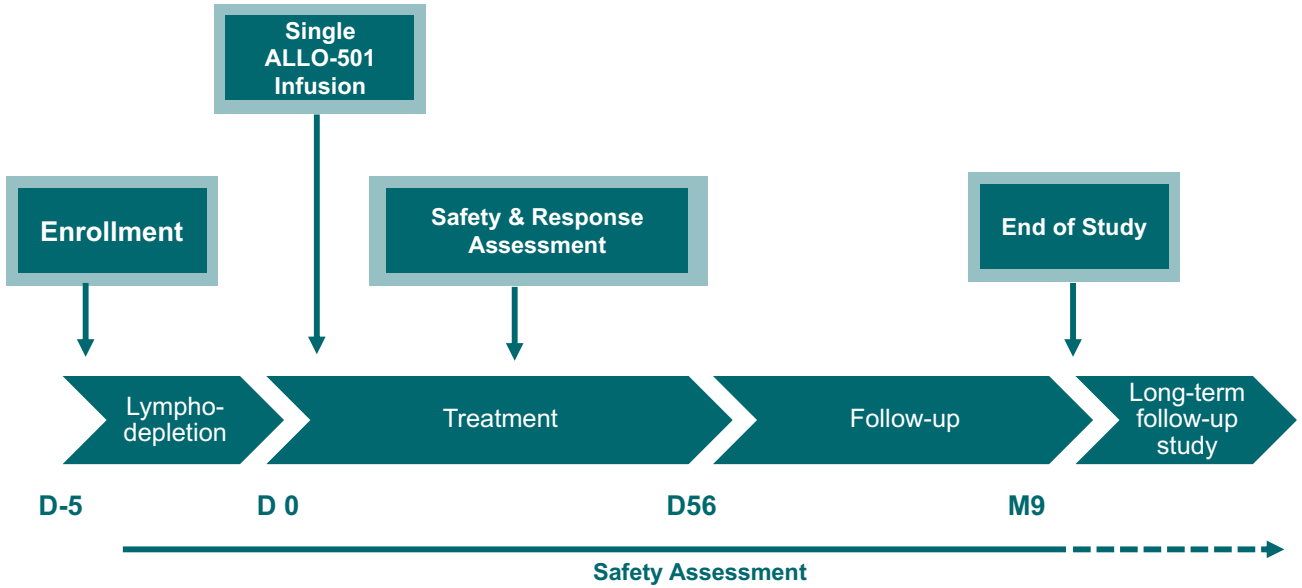
ALLO-501 ALPHA Study Targeting CD19 in R/R NHL

ALLO-501 and ALLO-647 Phase 1 Study Overview (Allogene-Sponsored)

- Initiated 1H 2019
- Eligible patients with relapsed/refractory large B-cell lymphoma or follicular lymphoma
- Objectives:
  - Primary: Safety, tolerability and recommended P2 doses for ALLO-501 and ALLO-647
  - Secondary: Anti-tumor activity, ALLO-501 cellular kinetics, ALLO-647 PK, immunogenicity and host lymphocyte reconstitution
- Dose-escalation of ALLO-501: 40 to 360 x 10^6 CAR+ cells in 3+3 design
- Up to 24 patients
- Data expected in 1H 2020

Trial progress provides an opportunity to explore use in patients who have previously received a CD19 cell therapy, evaluate the potential for re-dosing, and further optimize the lymphodepletion regimen



Treatment:
- Starting cell dose: 40 X 10^6 CAR+ cells

Lymphodepletion:
- ALLO-647: 13 mg/d x 3 days
- Fludarabine: 30 mg/m^2/d x 3 days
- Cyclophosphamide: 300 mg/m^2/d x 3 days

Servier holds ex-US rights to ALLO-501

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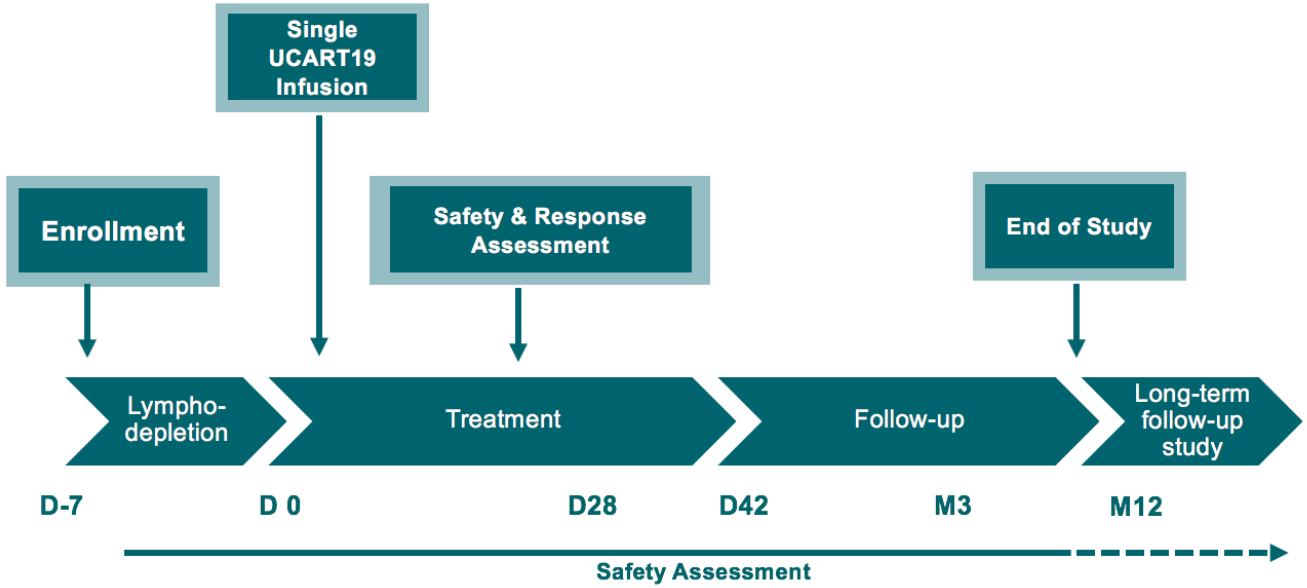
UCART19 PALL & CALM Studies Targeting CD19 R/R ALL

UCART19 ALL Pediatric (PALL) and Adults (CALM) Study Overview
Servier Sponsored

- Eligible patients with CD19+ B-ALL and:
  - Morphological or MRD+
  - Failed previous treatment options
- Objectives:
  - Primary: Safety and tolerability
  - Secondary: Anti-leukemic activity
  - Exploratory: UCART19 expansion and persistence
- PALL ongoing:
  - ✓ n= 7 treated with 2 x 10^7 total cells
- CALM 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



- Fludarabine: 90 mg/m² for adults; 150 mg/m² for pediatrics
- Cyclophosphamide: 1500 mg/m² for adults; 120mg/kg for pediatrics
- Anti-CD52 mAb: 1 mg/kg both adults and pediatrics

PALL/CALM ASH 2018

UCART19: Manageable AE Profile in Phase 1 Studies

N=21	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)

ASH 2018

n: number of patients with at least one AE by worst grade
* 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

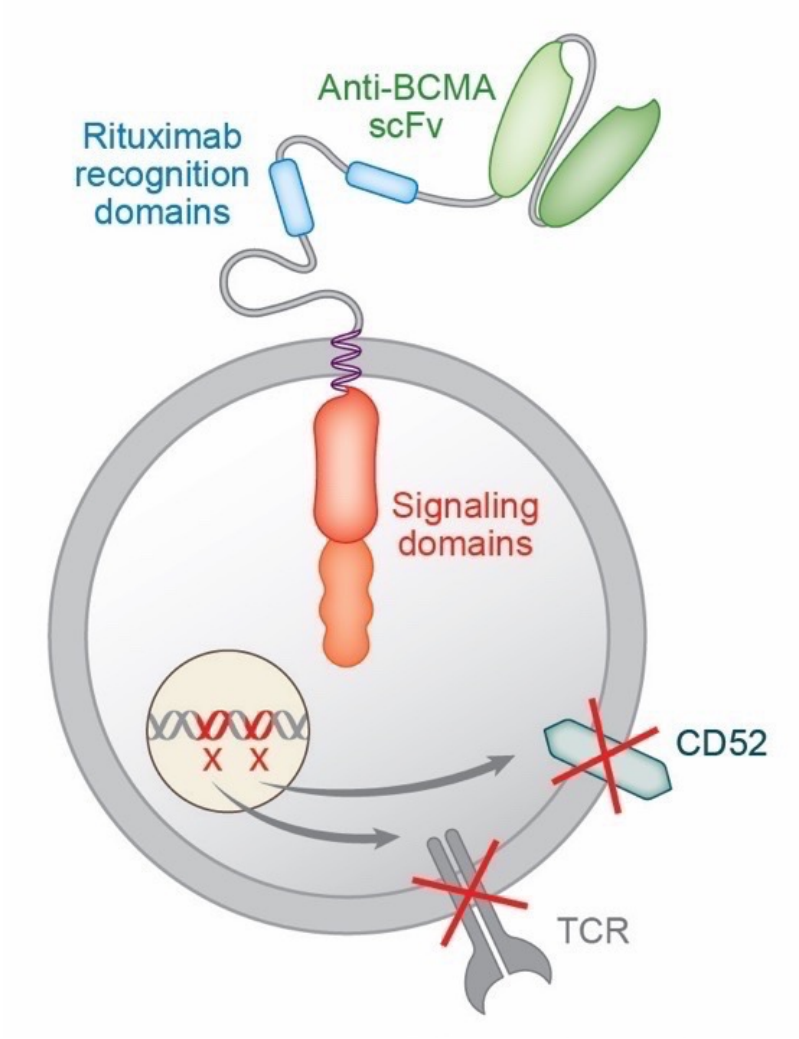
UCART19: 82% CR/CRi with FCA Lymphodepletion Regimen

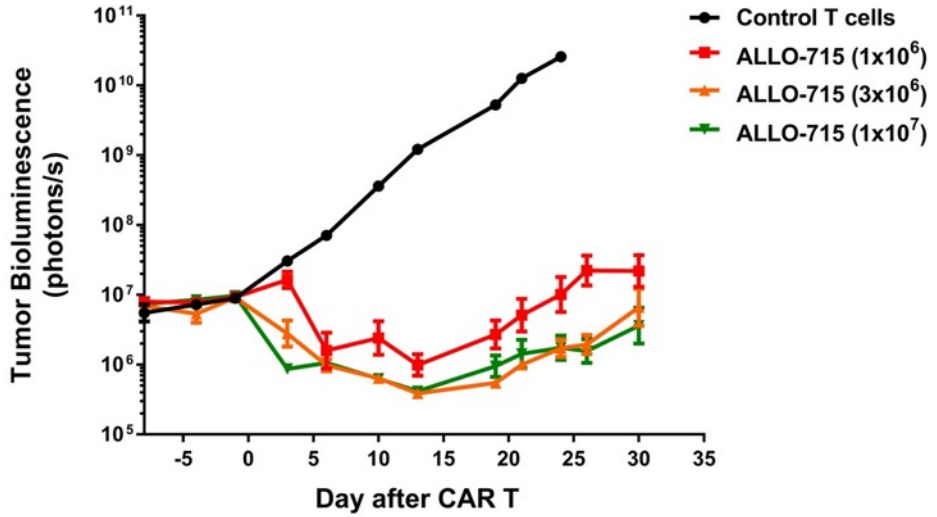
Trial	Patients Enrolled & Treated	CR/CRi with FCA	CR/CRi with FC only	CR/CRi Overall
PALL	7	100% (6/6)	0% (0/1)	86% (6/7)
CALM	14	73% (8/11)	0% (0/3)	57% (8/14)
Pooled	21	82% (14/17)	0% (0/4)	67% (14/21)

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

- 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

ALLO-715: BCMA AlloCAR T™ for Multiple Myeloma (MM)





ALLO-715 showed activity *in vitro* against myeloma cell lines and *in vivo* in xenograft models

- Phase 1 clinical trial initiated Q3 2019
- Preliminary data expected by the end of 2020
- Pre-clinical study published in *Molecular Therapy* validates the potential for an AlloCAR T to treat MM

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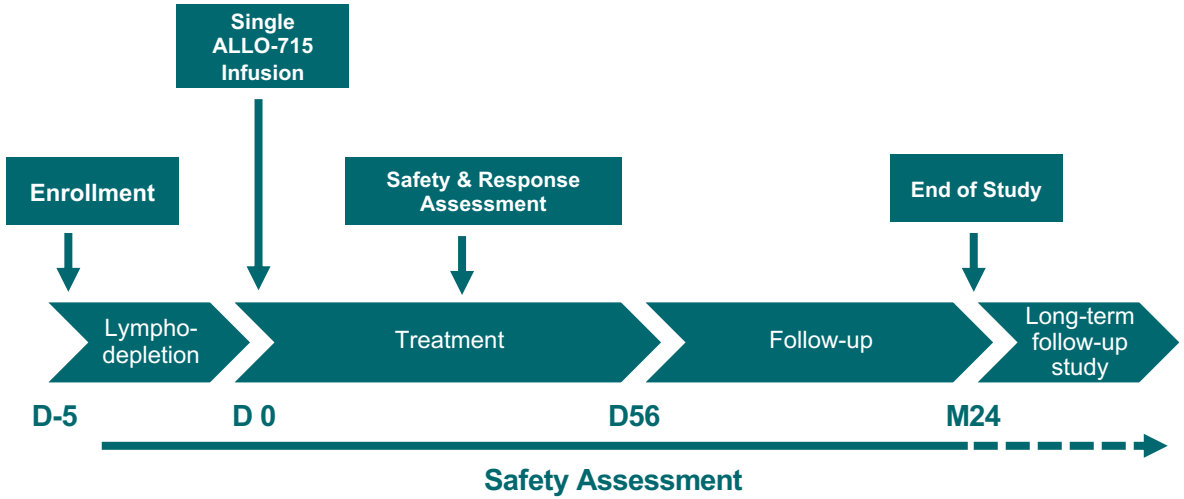
ALLO-715 UNIVERSAL Study Targeting BCMA in R/R MM

ALLO-715 and ALLO-647 Phase 1 Study Overview

- Eligible patients with relapsed/refractory multiple myeloma and:
  - Failed at least three prior MM regimens
    - Proteasome inhibitor, immunomodulatory agent, anti-CD38 mAb
  - Absence of pre-existing donor (product)-specific anti-HLA antibodies
  - No prior anti-BCMA therapy
- Objectives:
  - Primary: Safety and tolerability and recommended P2 doses for ALLO-715 and ALLO-647
  - Secondary: Anti-tumor activity, ALLO-715 cellular kinetics, ALLO-647 PK, immunogenicity and host lymphocyte reconstitution
- Dose-escalation of ALLO-715: 40 to 320 x 10^6 CAR+ cells
  - 3+3 design
  - Up to 24 patients expected in dose finding stage
  - Additional patients to be enrolled in cohorts designed to test alternative lymphodepletion strategies
  - Additional patients may be enrolled for further dose expansion



Treatment:
- Starting cell dose: 40 X 10^6 CAR+ cells

Lymphodepletion:
- ALLO-647: 13 mg/d x 3 days
- Fludarabine: 30 mg/m^2/d x 3 days
- Cyclophosphamide: 300 mg/m^2/d x 3 days

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CD70 for Renal Cell Carcinoma (RCC)

CD70 is the ligand for the co-stimulatory receptor CD27

- Normal CD70 expression is limited to activated lymphocytes and APCs

CD70 expression[1]:

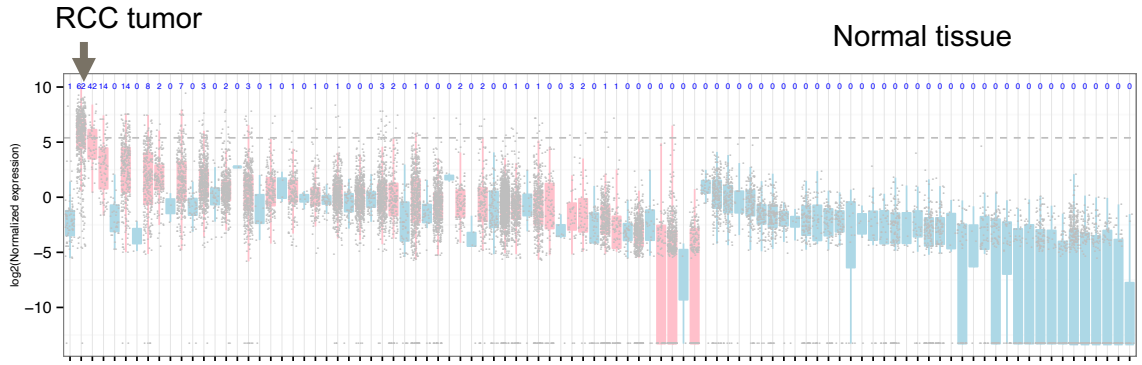
- RCC tumor samples (80-100%)
- AML (96%)
- DLBCL (71%), MM (63%), CLL (50%),
- GBM (35%)

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

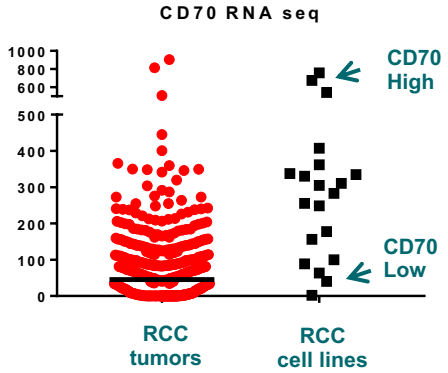
- Candidates screened to show long-lived activity in low-expressing cell lines similar to disease level expression

Pre-clinical data presented at AACR 2019; candidate to be selected for IND-enabling studies

CD70 Expression High in RCC and Low in Normal Tissues



CD70-Low Cell Line Models Match Median Expression in Tumors



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

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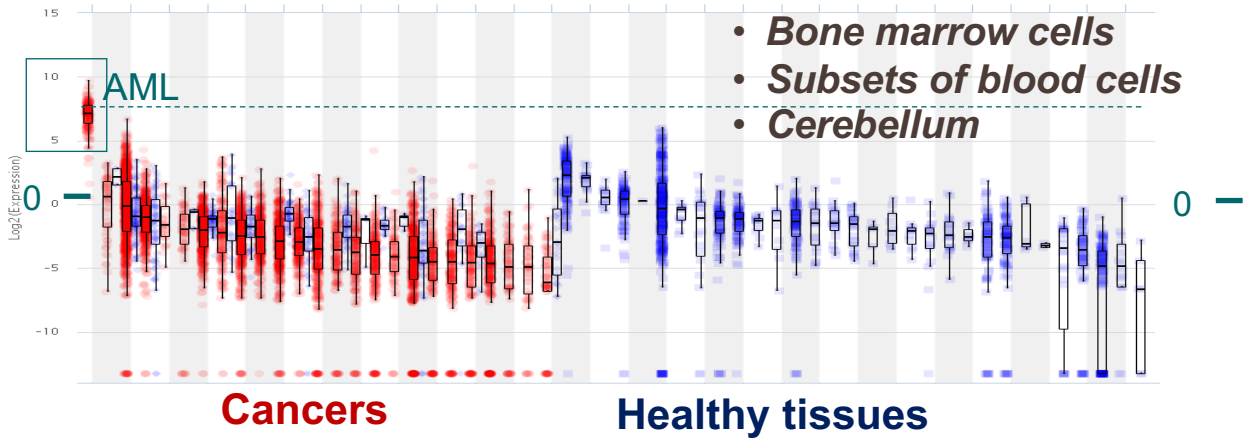
ALLO-819: FLT3 CAR T for Acute Myeloid Leukemia (AML)

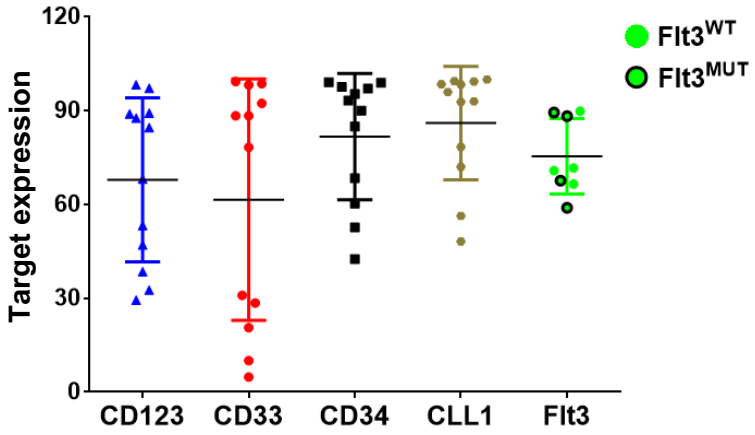
AML is a high unmet medical need with limited treatment options

- 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

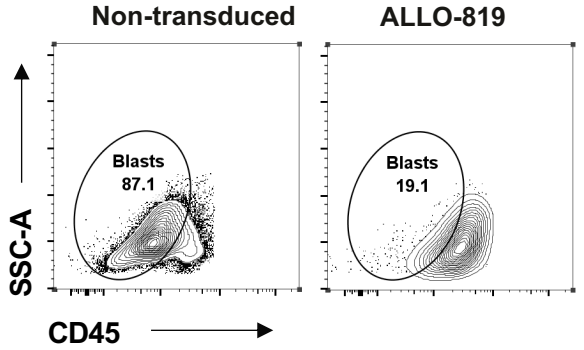
FLT3 - Most Favorable RNA Expression Profile of 4 Most Commonly Investigated AML Targets but May Have Some Normal Tissue Liabilities

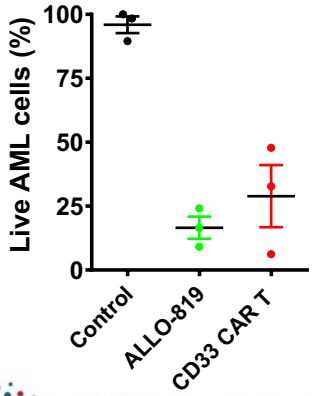


FLT3 is Present on a High Proportion of Primary AML Samples



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%)

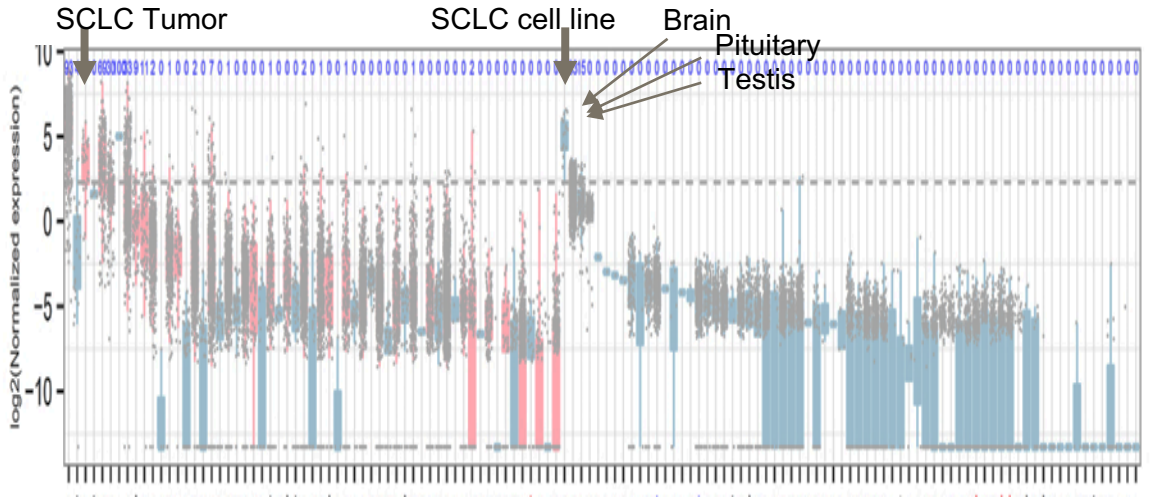
Candidate CARs chosen from several Abs targeting different regions of the protein

- 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

Allogene THERAPEUTICS

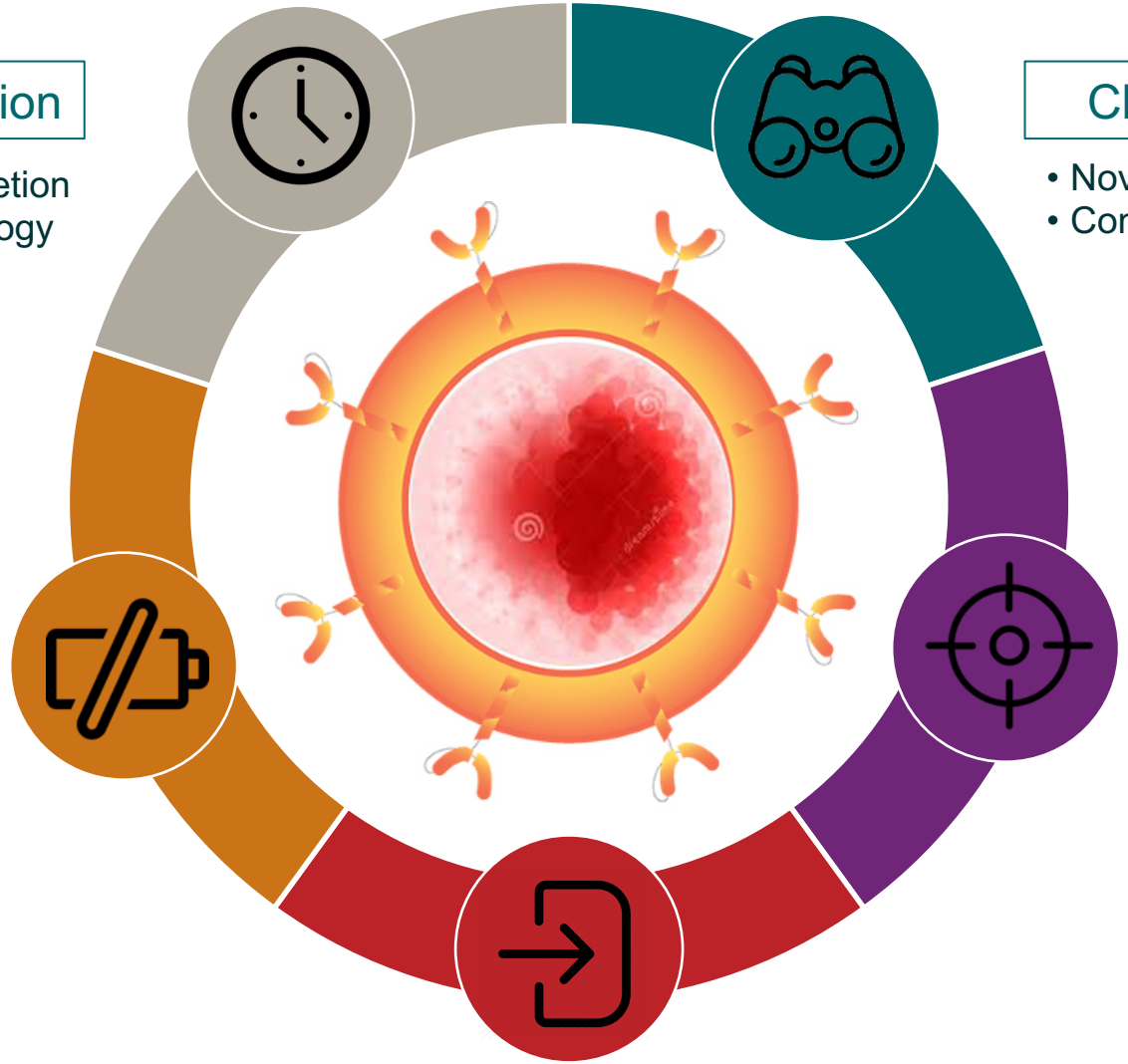
Engineering a Future for AlloCAR T™ in Solid Tumors

Control Rejection

- Novel lymphodepletion
- “Cloaking” technology

Clean Targets

- Novel targets
- Controlled activation of CAR T



Overcoming Exhaustion in TME

- Switch receptors
- Localized cytokine effects

Targeting Tumor Heterogeneity

- Multivalent CARs
- Bystander killing

Trafficking T cells to Tumor

- Locoregional delivery
- Manipulating chemokine receptor

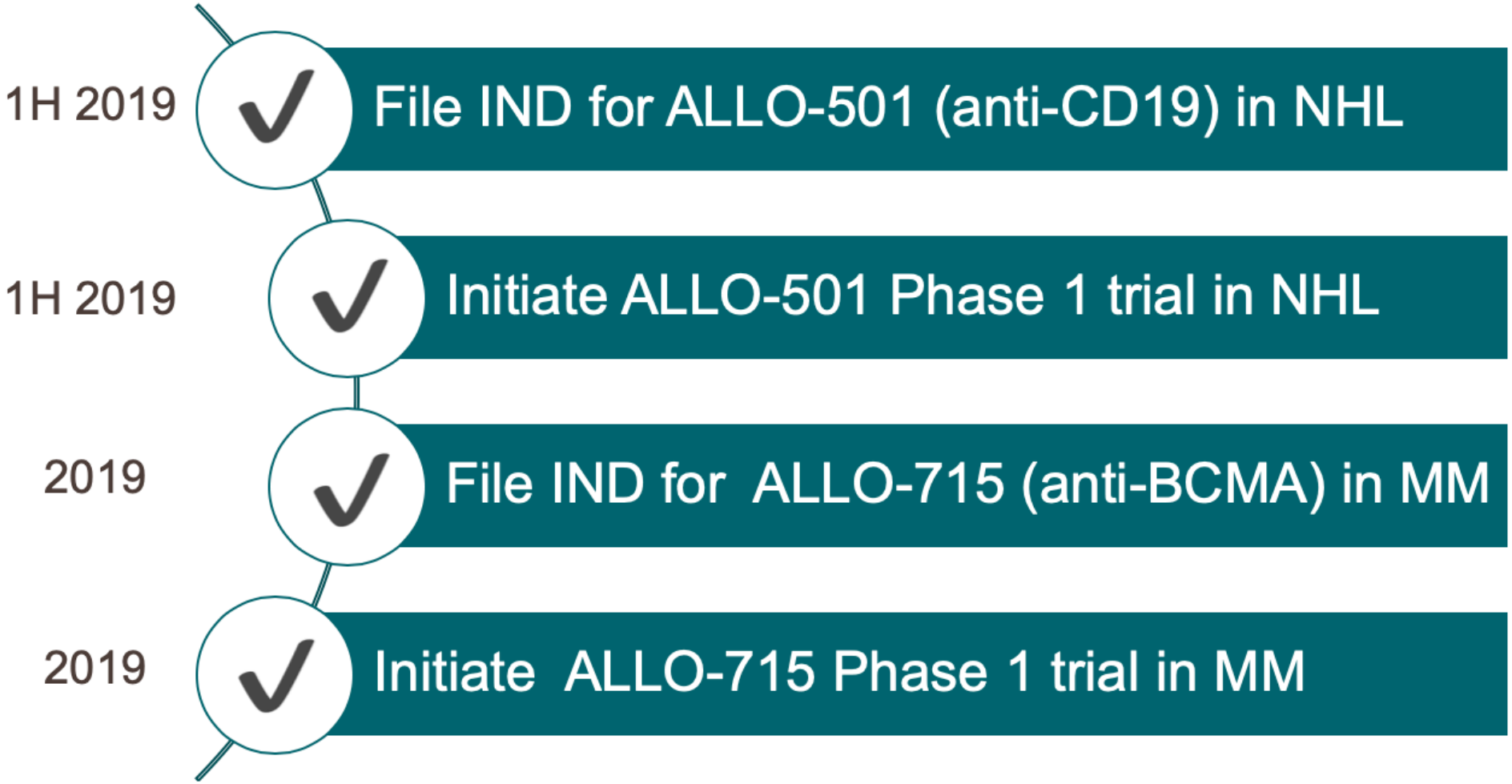
Allogene THERAPEUTICS

Building Our Leadership in Allogeneic Cell Therapy

- Collaboration and license for Notch technology enabling next-generation iPSC-derived T and/or NK Cell therapies against multiple targets for initial application in ALL, NHL and MM
- $10M upfront, research funding, milestones, royalties + Equity purchase for 25% stake in Notch with one Board Director
- Notch co-founders, JC Zuniga-Pflucker and Peter Zandstra are recognized pioneers in iPSC and T Cell differentiation technology

iPSCs may provide renewable starting material for AlloCAR therapies, improved gene-editing efficiency, product homogeneity and more scalable, streamlined manufacturing

The 2019 Path Forward: Allogene-Sponsored Program Milestones



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