Allogene® THERAPEUTICS

The Next Revolution in Cell Therapy

Leading Today, Creating Tomorrow

39th Annual J.P. Morgan Healthcare Conference
January 2021

Legal Disclaimers

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: clinical outcomes, which may materially change as patient enrollment continues and more patient data become available, the timing and ability to progress the clinical trials of ALLO-501, ALLO-501A and ALLO-715, the timing and ability to initiate a clinical trial of ALLO-715 in combination with SpringWorks' nirogacestat and a clinical trial of ALLO-316, the timing and ability to file an IND and initiate a clinical trial of ALLO-605, the ability to manufacture AlloCAR T™ therapies 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-Q for the quarter ended September 30, 2020.

Caution should be exercised when interpreting results from separate trials involving separate product candidates. There are differences in the clinical trial design, patient populations, and the product candidates themselves, and the results from the clinical trials of autologous products may have no interpretative value on our existing or future results.

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.

The Allogene Vision

Create and lead the next revolution in cancer treatment by delivering to patients the first AlloCAR T™ therapies for blood cancers and solid tumors.

Allogene: Singular Focus on Allogeneic Cell Therapy

SUCCESSFUL TRACK RECORD OF EXECUTION

2018 Allogene Launch	Manufacturing Experience	Clinical Trial Execution	Breaking Down Allogeneic Hurdles	Demonstrating Efficacy	Pipeline Progress 2021
From launch to leadership in less than 3 years Raised $1.5B in aggregate capital	Delivered uninterrupted supply for all clinical trials Newark facility on track to begin production in 2021	Leading the field with 75+ patients treated with AlloCAR T 2 key Phase 1 datasets presented in 2020 at major medical meetings	Controlling Graft vs Host Disease (GvHD) and AlloCAR T cell rejection Creating a window of cell persistence	Complete Responses and Minimal Residual Disease (MRD) responses observed Proof-of-Concept for proprietary lymphodepletion platform	5 clinical trials planned in 2021, including: 1st pivotal trial 1st solid tumor trial 1st combo trial 1st TurboCAR trial

Allogene THERAPEUTICS

Deep AlloCAR T™ Pipeline Targeting Vast Array of Tumor Types

CATEGORY		PROGRAM	PRE-CLINICAL	PHASE 1	PHASE 2/3[2]
Hematological Malignancies	CD19	**ALLO-501 (NHL)[1]**			
		ALLO-501A (NHL)[1]			
	BCMA	**ALLO-715 (MM)**			
		ALLO-715 + nirogacestat (MM)[3]			
		ALLO-605 (TurboCAR™/MM)			
		ALLO-316 (CD70/AML)			
		ALLO-819 (FLT3/AML)			
Solid Tumors		**ALLO-316 (CD70/RCC)**			
		DLL3 (SCLC)			
		10 Undisclosed Targets			
Lymphodepletion Agent		**ALLO-647 (Anti-CD52 mAb)[4]**			

[1] Servier holds ex-US commercial rights
[2] Phase 3 may not be required if Phase 2 is registrational; Initiation for ALLO-501A Phase 2 trial expected 2021
[3] Allogene Sponsored trial in combination with SpringWorks Therapeutics
[4] ALLO-647 intended to enable expansion and persistence of allogeneic CAR T product candidates

Allogene THERAPEUTICS

Innovating CAR T Therapies to Potentially Expand Access & Reduce Cost

Cost

- Scalable and efficient manufacturing
- Potential to treat 100+ patients from a single manufacturing run
- Opportunity to reduce ancillary cost of care associated with autologous therapy

Innovation

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

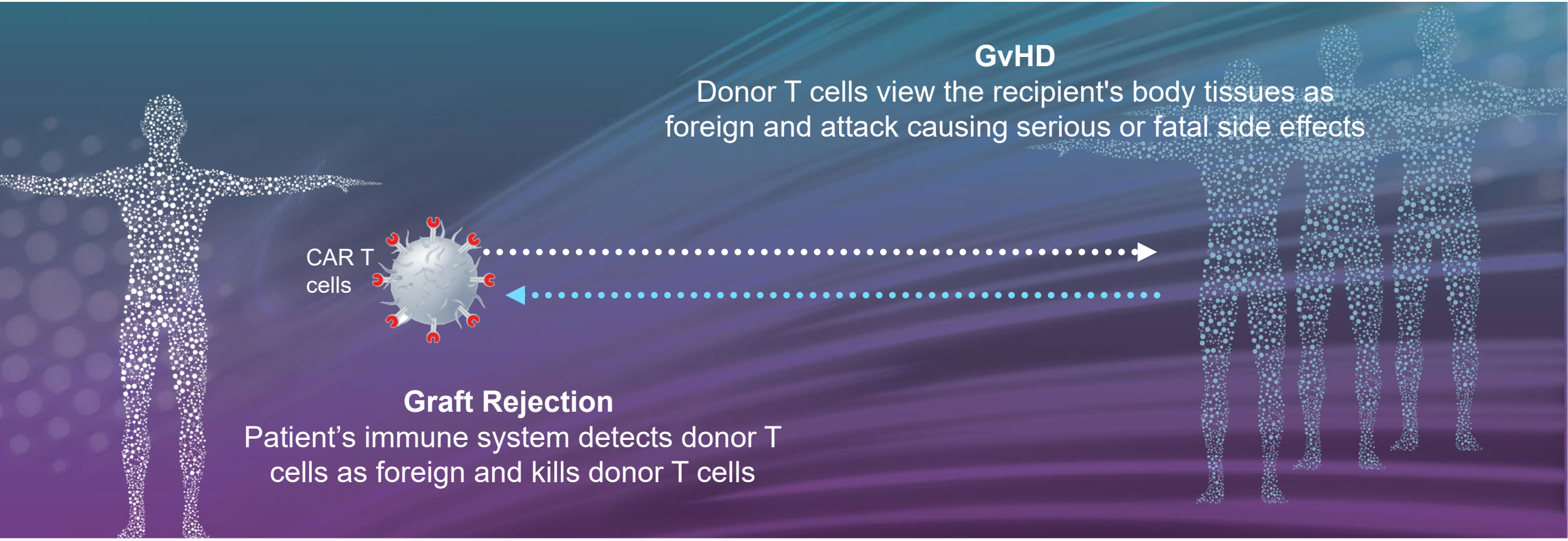
Access

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

Speed/Reliability

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

Defying Immunity: Overcoming GvHD and Graft Rejection



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

Allogene THERAPEUTICS

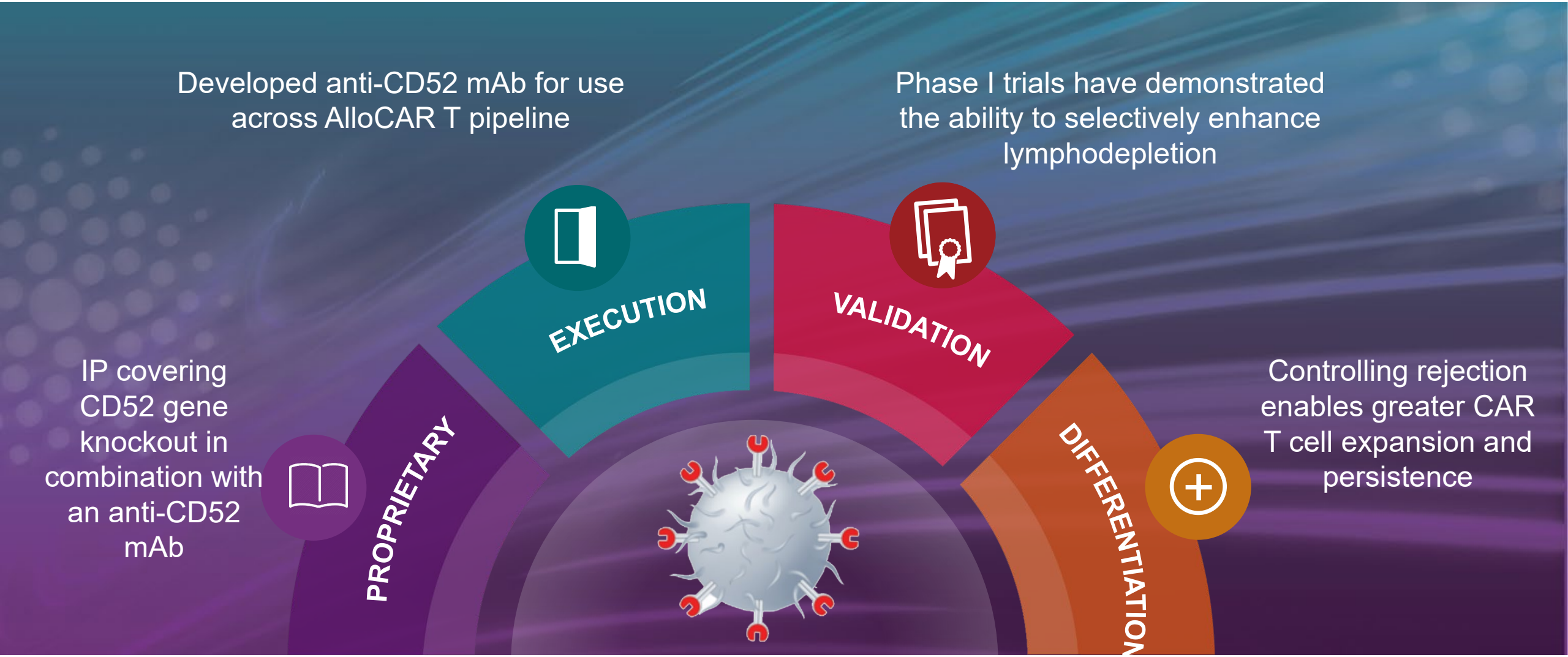
ALLO-647 Anchors Novel, Proprietary Approach to Overcoming Rejection

Developed anti-CD52 mAb for use across AlloCAR T pipeline

Phase I trials have demonstrated the ability to selectively enhance lymphodepletion

IP covering CD52 gene knockout in combination with an anti-CD52 mAb

Controlling rejection enables greater CAR T cell expansion and persistence



Allogene THERAPEUTICS

Industrializing Allogeneic Cell Therapy Production: Strategy

- Singularly focused AlloCAR T platform development enables speed and minimizes cost
- Ownership of manufacturing and testing allows improved process optimization, and control regulatory and compliance
- Investment in partnerships with critical suppliers ensures availability of emergent, high-demand materials
- ALLO-647 development and production, with dedicated ALLO oversight, preserves focus on AlloCAR T's
- Leveraging QTPP framework for product understanding to improve process performance and supports comparability
- COGM is shaped by infrastructure, and operationalization choices

Allogene THERAPEUTICS

Industrializing Allogeneic Cell Therapy Production: Infrastructure

Cell Forge 1 (Newark, CA)

- New state-of-the-art facility
- Designed for clinical and commercial manufacturing, analytical testing and distribution of cell therapies
- Construction complete in 2020, first GMP production 2021

South San Francisco Facilities

- Manufacturing process and product development
- Analytical methods for process and product understanding and release
- Quality Assurance and Quality Control

External Network

- Broad CMO and supplier network
- Incorporating external expertise for starting materials, drug substance and drug product manufacturing
- Packaging, labeling, logistics and clinical distribution

CD19 Program: Advancing ALLO-501A to Potential Pivotal Study
Potential to be the First Allogeneic CAR T in Phase 2

ALLO-501 ALPHA Ph1 Trial | Initial Data: ASCO 2020 | Next Update Expected 1H 2021

Early efficacy competitive with autologous CAR T: 83% ORR and 67% CR with higher dose ALLO-647 (N=6)

Well tolerated: No GvHD and manageable CRS. Early safety data compared favorably to autologous CAR T

On demand dosing: 5 days from enrollment to treatment vs. 17-54 days for autologous therapies

Biomarker validation: Correlations observed with ALLO-647 lymphodepletion, ALLO-501 cell expansion, and tumor response

Further exploration of dosing: Retreatment and consolidated dosing to potentially optimize outcomes

Cell Dose and LD regimen	ALLO-501[1] ALLO-647 90mg (N=6)	Autologous Ph1 Trials in NHL[2]	Autologous Ph2 Trials in NHL[3]
ORR, n (%)	5 (83%)	64-80%	50-73%
CR, n (%)	4 (67%)	56-60%	32-53%

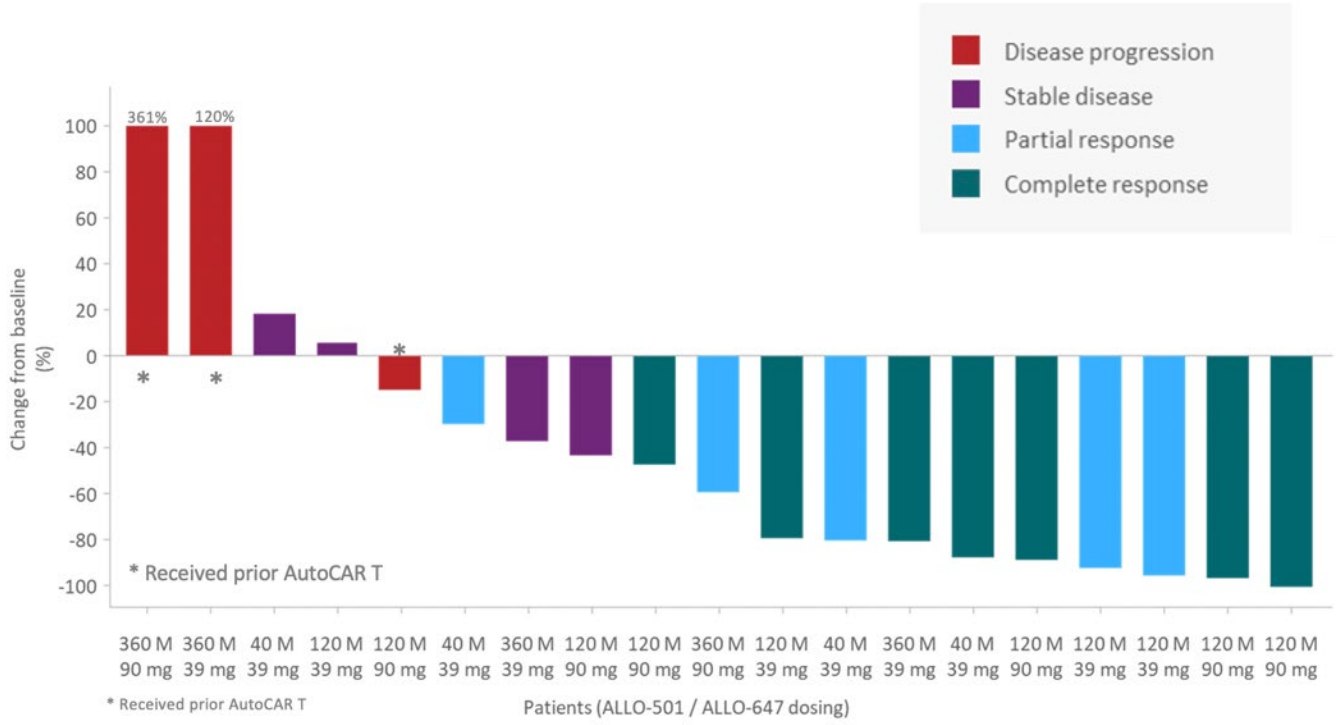
[1] *ASCO June 2020; Autologous CAR T naïve patients*
[2] *Kymriah and liso-cel trials include FL and MCL patients; ASH 2015; Schuster, NEJM, 2019; Abramson, ASH 2019*
[3] *Yescarta, Kymriah FDA labeling information and Abramson ASH 2019; Based upon mITT analyses*

AE of Interest (≧Gr3)	ALLO-501 Ph1 (N=22)	axi-cel Ph2* (N=101)	tisa-cel Ph2* (N=111)	liso-cel Ph2* (N=269)
Cytokine Release Syndrome	5%	13%	23%	2%
ICANS	-			
Neurologic Events		31%	18%	10%
Graft-versus-Host Disease	-	-	-	-
Infection	9%	23%	25%	12%
Neutropenia	64%	93%	81%	60%
Infusion Reaction	5%**	-	-	-

** Neelapu NEJM 2017, Schuster NEJM 2019, and Abramson ASH 2019*
*** Attributed to ALLO-647*

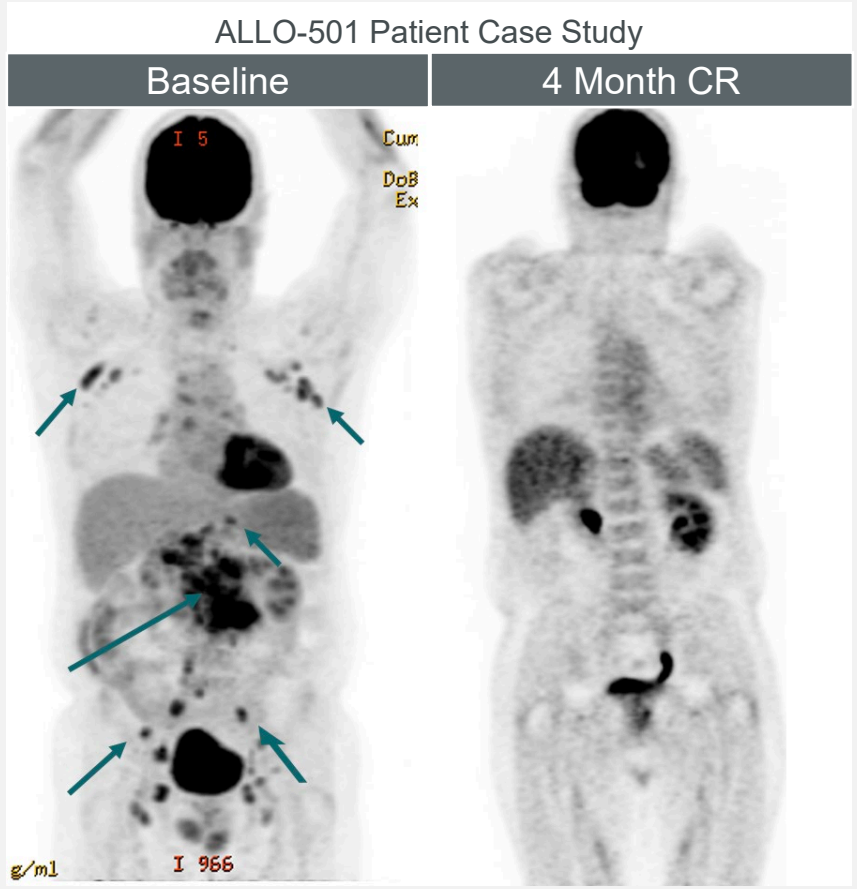
ALLO-501A ALPHA2 Ph1 Trial | Initial Data: Expected 1H 2021 | Anticipate Pivotal Trial Initiation in 2H 2021

ALLO-501 Demonstrated Meaningful Tumor Reductions



ASCO May 2020

4 Month Ongoing CR



Allogene THERAPEUTICS

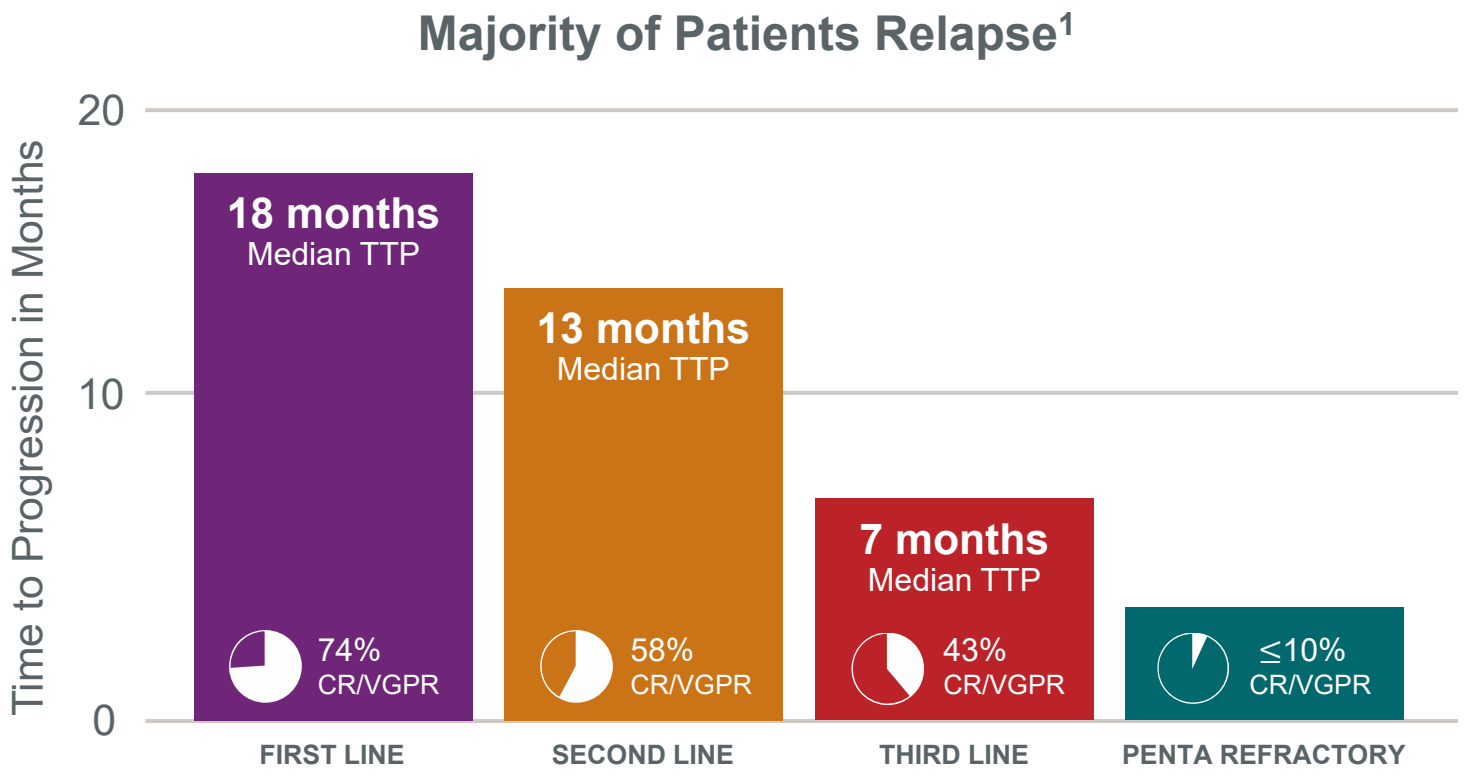
ALPHA Trial: De-Risking the CD19 Program

- ☑ Can ALLO-501 be successfully manufactured?
- ☑ Can ALLO-501 be safely administered without causing clinically relevant Graft vs. Host Disease?
- ☑ Can ALLO-647 be safely administered and allow a sufficient window of lymphodepletion to allow ALLO-501 expansion and persistence?
- ☑ Can ALLO-501 provide complete responses across multiple histologies?
- ONGOING Can ALLO-501 provide durable responses?

Why Allogeneic Cell Therapy Matters in Multiple Myeloma

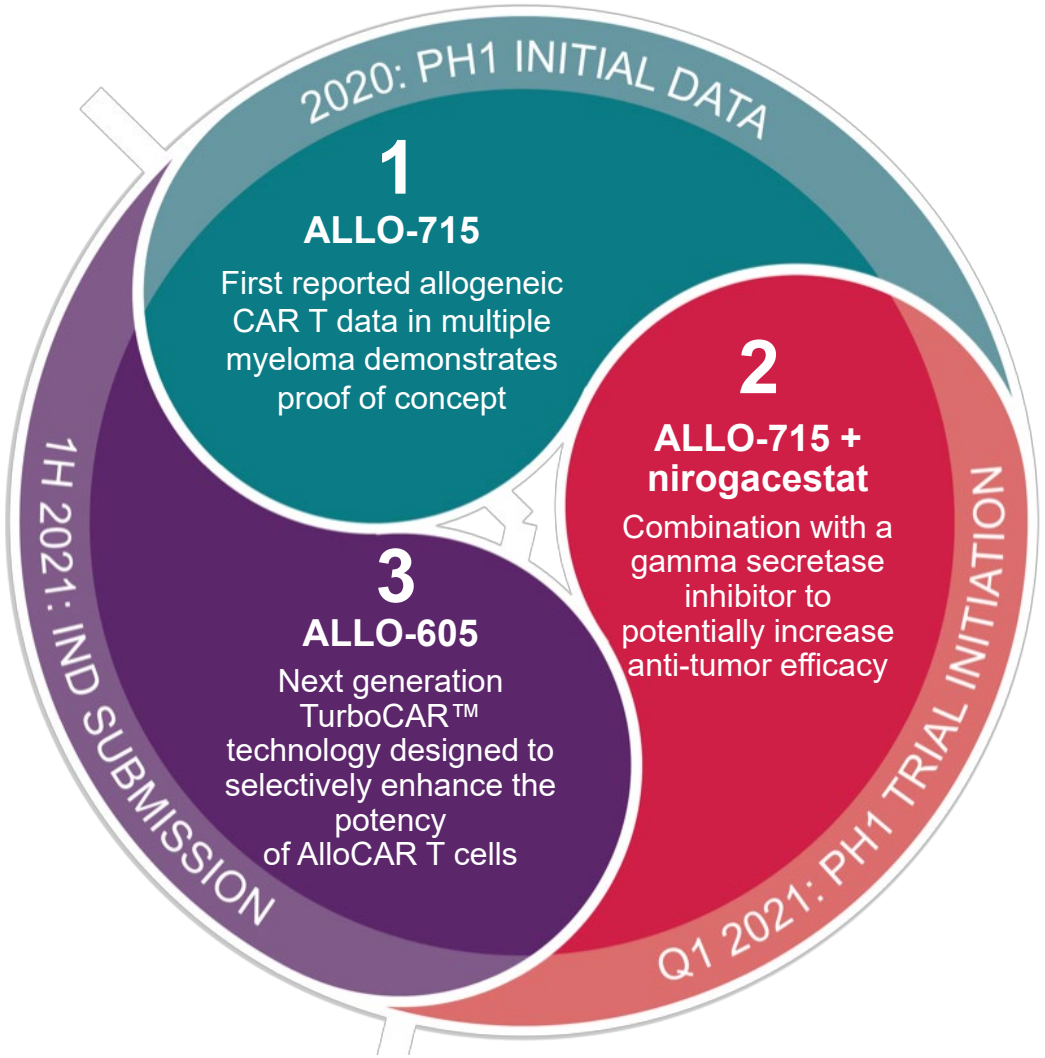
- Multiple myeloma is a progressive disease. Prognosis for patients worsens over time
- Bridging therapy to “control” the disease may increase some cumulative or synergistic toxicities for the patients[2]

Time is of the essence for patients with rapid progression



[1]Bird SA, Boyd K. Palliat Care Soc Pract. 2019;13:1-13
[2]Zheng Ping-Pin, et al. Drug Discovery Today June 2018; 23:6; 1175-82
[3] Gandhi, et al., *Leukemia*. 2019 September ; 33(9): 2266–2275. doi:10.1038/s41375-019-0435-7; TTP based upon conditional mPFS reported, VGPR based on interpolated values

Building an Anti-BCMA AlloCAR T Franchise in Multiple Myeloma



Allogene THERAPEUTICS

ALLO-715: First AlloCAR T To Demonstrate Feasibility in Myeloma

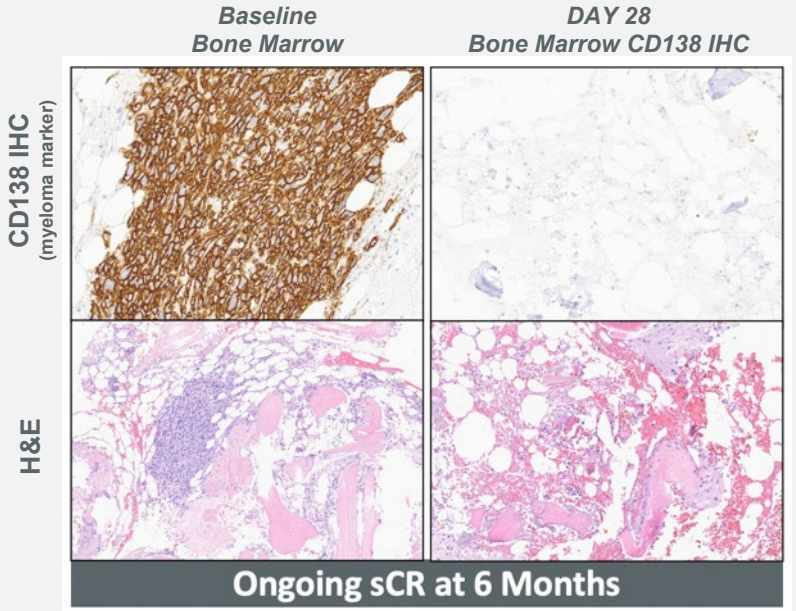
ALLO-715 UNIVERSAL Ph1 Trial: *Initial Data Readout: ASH 2020*
Next Steps: *Explore further dose escalation and combination with nirogacestat*

Clear benefits associated with an off-the-shelf therapy:
- ~90% of patients treated within 5 days of study enrollment
- Obviates need for bridging therapy prior to dosing

Well tolerated across dose levels:
- No GVHD or neurotoxicity (ICANS); manageable grade 1 or 2 CRS
- Infection rate on par with other studies in advanced myeloma

Dose dependent ALLO-715 activity observed in heavily pretreated, refractory patients
- ALLO-715 cell persistence observed through month 4
- 320M cell dose of ALLO-715 (DL3) with FCA lymphodepletion associated with a 60% Overall Response Rate (ORR)
- 5 of 6 VGPR+ patients assessed for MRD status; all were negative

ALLO-715 Case Study: Ability to Achieve a Durable Deep Response



9 prior lines of therapy, progressing on last line of therapy

ASH 2020; image on file

Allogene THERAPEUTICS

ALLO-715: Initial Data Creates Pathway for Allogeneic CAR T in MM

Initial Safety Compared to BCMA Directed Therapies

	ALLO-715 Ph1 (N=31)[1]	Ide-Cel 300/450M N=128[2]	Orva-Cel 300/450/600M N=62[3]	Cilta-Cel 0.75M/kg N=29 [4]
Cytokine Release Syndrome (CRS)	**45%**	84%	89%	93%
CRS (Grade ≥3)	**0**	5.5%	3%	7%
Neurologic Toxicity	**0**	18%	13%	10%
Neurologic Toxicity (Grade ≥3)*	**0**	3%	3%	3%
Infection (Grade ≥3)	**16%**	NR	13%	21%
Neutropenia (Grade ≥3)	**52%**	89%	90%	100%
Death from AEs	**3%**	3%	3%	8%

1 ASH 2020; 2 Munshi, ASCO 2020 (Ide-cel); 3 Mailankody, ASCO 2020 (Orva-cel) ; 4 Madduri, ASH 2020 Abstract

Initial Responses Compared to BCMA Directed Therapies

Cell Dose & LD regimen	ALLO-715 320M & FCA (N=10)[1]	Ide-Cel (BB/BMS) 300/450M N=124[2]	Orva-Cel (Juno/BMS) 300/450/600M N=62[3]	Cilta-Cel (JNJ) 0.75M/kg N=97[4]
ORR, %	**60%**	73%	92%	95%
VGPR+ Rate, %	**40%**	53%	68%	88%
MRD- Rate, % (N Evaluated)	**100% (4/4)**	78% (80/102)	84% (21/25)	94% (49/52)

1 ASH 2020; Responses included 2 subjects with only day 14 assessment and 1 subject who converted from a confirmed PR to VGPR (pending confirmation). ; 2 Munshi, ASCO 2020 (Ide-cel); 3 Mailankody, ASCO 2020 (Orva-cel) ; 4 Madduri, ASH 2020 Abstract

UNIVERSAL: ALLO-715 + Nirogacestat Cohort

Primary Endpoints

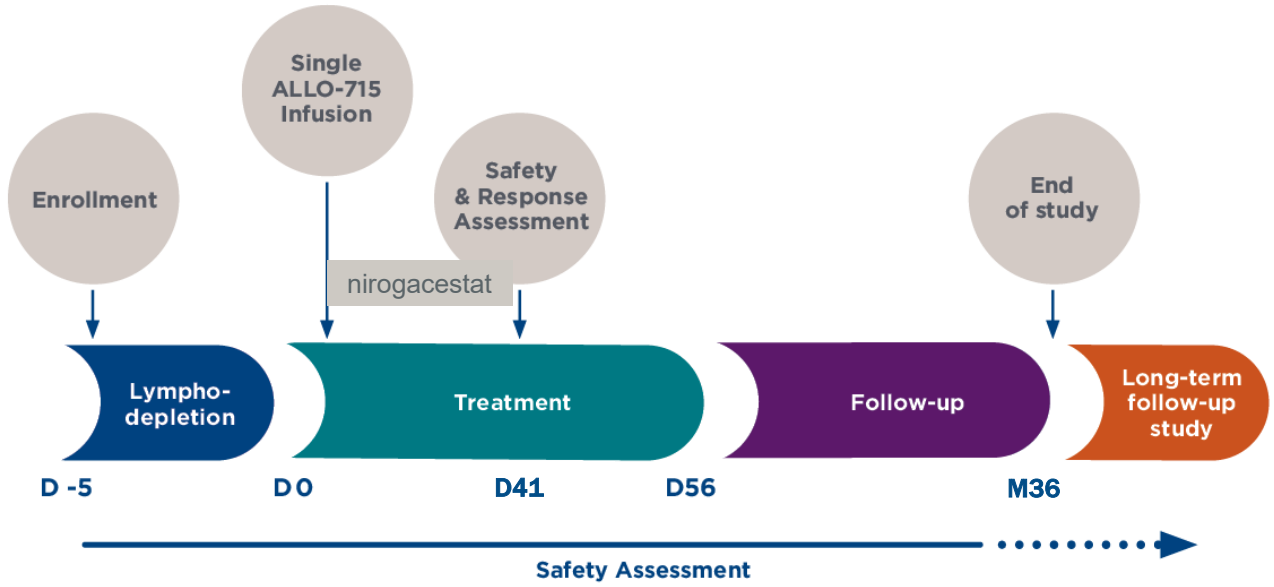
- Safety and tolerability of ALLO-715 in combination with nirogacestat

Secondary Endpoints

- Anti-tumor activity and cellular kinetics of ALLO-715 in combination with nirogacestat
- ALLO-647 and nirogacestat pharmacokinetics
- Evaluate the expression of BCMA in bone marrow plasma cells with and without nirogacestat

Key Eligibility Criteria

- Relapsed/Refractory Multiple Myeloma
- ≥ 3 prior therapies including IMiD, PI & anti-CD38
- Refractory to last prior therapy
- ECOG 0 or 1
- No donor-specific antibodies
- No bridging therapy allowed

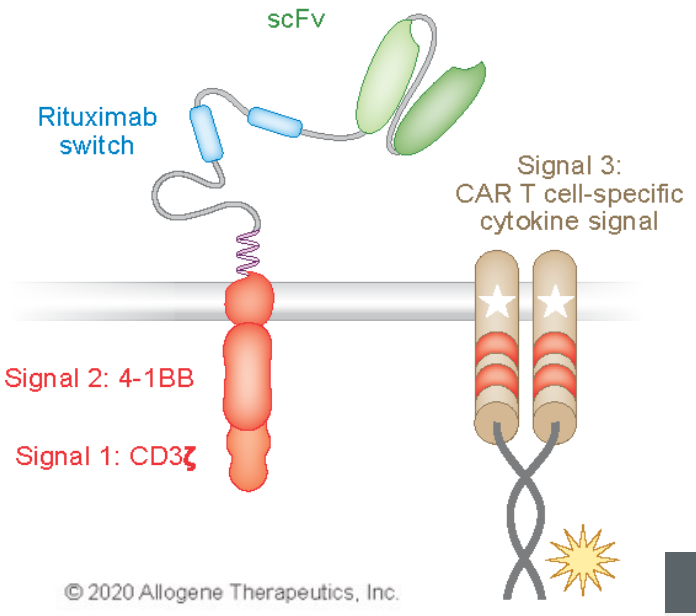


ALLO-715 Dose Escalation: 320 or 480 x 10^6 CAR^+ T cells

IMiD: immunomodulatory imade drug
PI: proteosome inhibitors

Allogene THERAPEUTICS

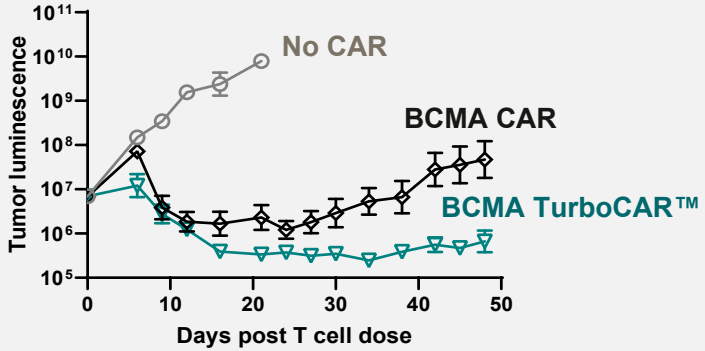
ALLO-605: First TurboCAR™ Investigational Candidate



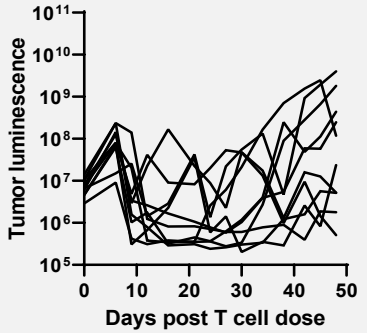
ALLO-605 IND Planned in 1H 2021

- **TurboCAR™ is designed to recapitulate cytokine signaling selectively in CAR T cells**
  - Does not stimulate host immune cells which could cause systemic toxicity or 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
- **Improved Engraftment and Persistence, and Delayed Exhaustion seen in preclinical studies**

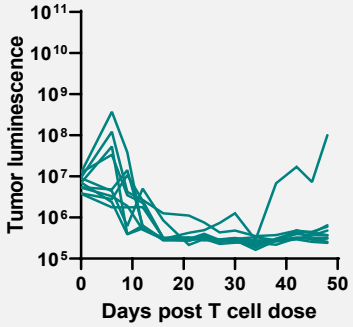
Enhanced Activity and Durability of Response



BCMA CAR



BCMA TurboCAR™



Translating CAR T Success in Hematologic Cancers to Solid Tumors

2020 American Cancer Society Statistics

	Heme Malignancies	Solid Tumors
Incidence	179,000	1,600,000
Deaths	57,000	504,000

Worldwide Market for Oncology Drugs in 2018*

- All drug spend = $1.2 trillion
- Total cancer drug spend ≈ $150 billion
- Hematologic cancer drugs ≈ $31.3 billion

*IQVIA

Significant opportunity to expand benefits of CAR T therapy into largest area of unmet need

Target Selection/Validation

- CAR optimization
- Multi-targeting CARs

T Cell Fitness

- CAR signaling/ TurboCARs™
- Manufacturing improvements

Tumor Trafficking

- Combinations
- CAR T engineering

Immunosuppressive TME

- Next generation TurboCARs
- Enhanced/flexible lymphodepletion
- CAR T cell doses, frequencies and administration of cells

Allogene THERAPEUTICS

ALLO-316: Blazing a Trail into Solid Tumors

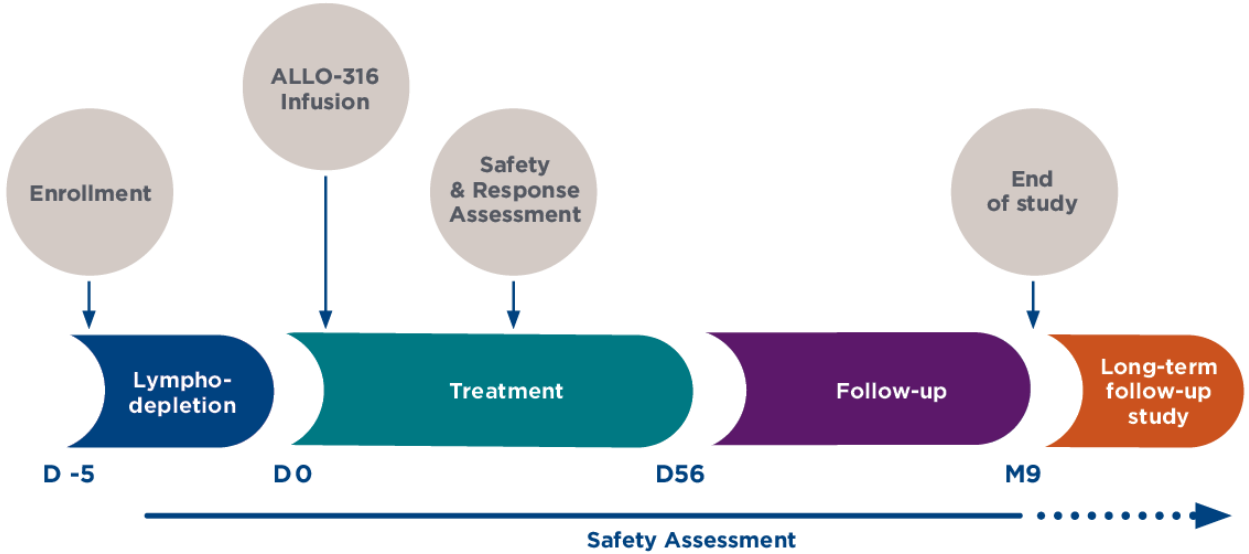
First of Several Solid Tumor Candidates Planned for Clinical Development

CD70 target selectively expressed in several cancers[1]:

- RCC (80-100% of tumors)
  - High prevalence with limited 'off tumor' expression
- AML (96% of tumors)

IND cleared for anti-CD70 candidate ALLO-316:

- ALLO-316 is associated with minimal or no fratricide
- Phase I TRAVERSE trial in RCC to begin in 1H 2021
  - Primary endpoints: Safety and tolerability
  - Secondary endpoints: Anti-tumor efficacy, PK/PD
- Potential second indication in AML targeted for 2021/2022



	DL1	DL2	DL3	DL4
Cell Dose	40 x 10^6 CAR$^+$ T cells	120 x 10^6 CAR$^+$ T cells	360 x 10^6 CAR$^+$ T cells	480 x 10^6 CAR$^+$ T cells

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

Allogene THERAPEUTICS

Partnerships: Accelerating Development and Positioning for the Future

GLOBAL EXPANSION

SERVIER

Global development partner for CD19 with ex-US commercialization rights

OVERLAND PHARMA

Established Allogene Overland Biopharm joint venture to develop and commercialize AlloCAR T™ cell therapies in greater China

TECHNOLOGIES

cellectis

TALEN gene editing

Notch THERAPEUTICS

Induced pluripotent stem cells (iPSC)

MaxCyte®

Enhanced manufacturing efficiency

RESEARCH

MD Anderson Cancer Center

Preclinical and clinical investigation of AlloCAR T candidates across Allogene's broad portfolio of hematologic and solid tumors

SpringWorks THERAPEUTICS

Clinical collaboration to evaluate ALLO-715 in combination with Nirogacestat

Allogene Overland Joint Venture: Expanding into Greater China

Opportunity to Accelerate Global Development of AlloCAR T Therapies

Allogene Therapeutics

- Leadership in Allogeneic CAR T
- AlloCAR T assets
  - BCMA
  - CD70
  - FLT3
  - DLL3
- Manufacturing expertise

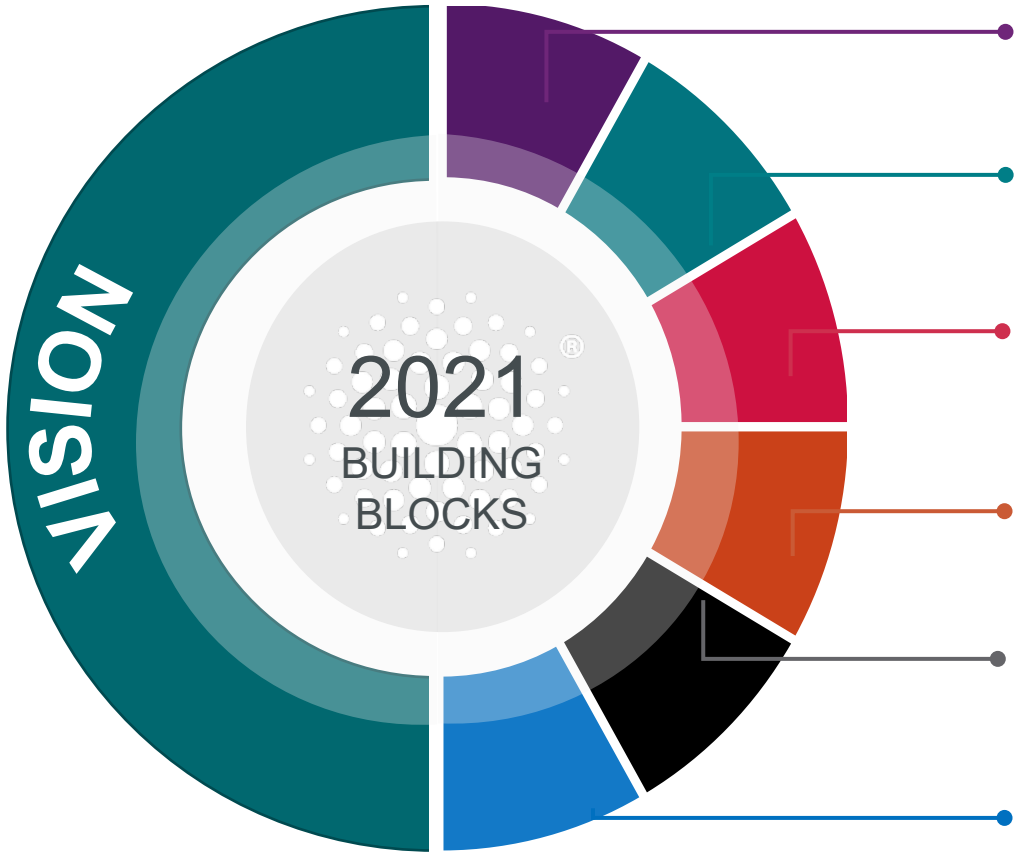
Allogene Overland Biopharm

- First-of-its-kind collaboration in allogeneic cell therapy
- Rights to develop AlloCAR T therapies for four targets in Greater China, Taiwan, South Korea and Singapore
- Milestones to Allogene and tiered royalties on net sales

Overland Pharma

- Backed by Hillhouse Capital
- $117 million in non-dilutive capital:
  - $40 million upfront to ALLO
  - $77 million to support joint venture operations

2021 Building Blocks to the Allogene Vision



- 1H: Initiate ALLO-715 (BCMA) + nirogacestat clinical trial
- 1H: Initiate ALLO-316 (CD70) clinical trial in RCC
- 1H: Submit ALLO-605 (BCMA) TurboCAR IND in MM
- 1H: ALLO-501/ALLO-501A (CD19) clinical update
- 2H: Initiate ALLO-501A (CD19) pivotal trial
- 2H: ALLO-715 (BCMA) clinical update

Create and lead the next revolution in cancer treatment
by delivering to patients the first AlloCAR T™ therapies for blood cancers and solid tumors.

Allogene THERAPEUTICS

Allogene® THERAPEUTICS

The Next Revolution in Cell Therapy

Leading Today, Creating Tomorrow

Allogene therapies utilize TALEN® gene-editing technology pioneered and owned by Cellectis. ALLO-501 and ALLO-501A are anti-CD19 AlloCAR T™ therapies being jointly 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 ALLO-501 and ALLO-501A in the U.S. while Servier retains exclusive rights for all other countries. Allogene has an exclusive license to the Cellectis technology for allogeneic products directed at BCMA, FLT3, DLL3 and CD70.