Cartesian® therapeutics

Pioneering mRNA Cell Therapy for Autoimmunity

January 2025

Forward-looking statements

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Clinical-stage company pioneering mRNA cell therapies designed to expand the reach of cell therapy to autoimmunity

- Pipeline of mRNA cell therapies designed to be dosed more reliably and safely in an outpatient setting ***without lymphodepletion***
- Descartes-08: Investigational mRNA CAR T-cell (CAR-T) with ***deep and durable responses*** observed in randomized, double-blind, placebo-controlled Phase 2b trial in patients with myasthenia gravis (MG)
- ***Wholly-owned GMP manufacturing*** designed to enable rapid optimization of processes in iterative manner

MULTIPLE ANTICIPATED NEAR-TERM CATALYSTS

DESCARTES-08

- Phase 3 AURORA study expected to commence in 1H25
- Open-label Phase 2 trial ongoing in Systemic Lupus Erythematosus (SLE); data readout expected in 2H25
- IND filing made for Phase 2 pediatric basket trial

DESCARTES-15

- Next-generation mRNA CAR-T candidate
- Dosing underway in first-in-human Phase 1 dose escalation trial

CASH RESOURCES

- ***Strong balance sheet with approximately $220.9 million****
- Expected to support planned operations, including completion of planned Phase 3 trial of Descartes-08 for MG, into mid-2027

* As of September 30, 2024.

GMP, Good manufacturing practices

CAR, Chimeric antigen receptor

IND, Investigational new drug application

Cartesian therapeutics

Cartesian's mRNA approach is designed to expand the reach of potent cell therapy products to address autoimmunity

No Lymphodepletion

No associated cytopenia, secondary malignancies, or other chemotherapy toxicities

Administered Outpatient

Convenient dosing schedule

Delivered at Therapeutic Levels

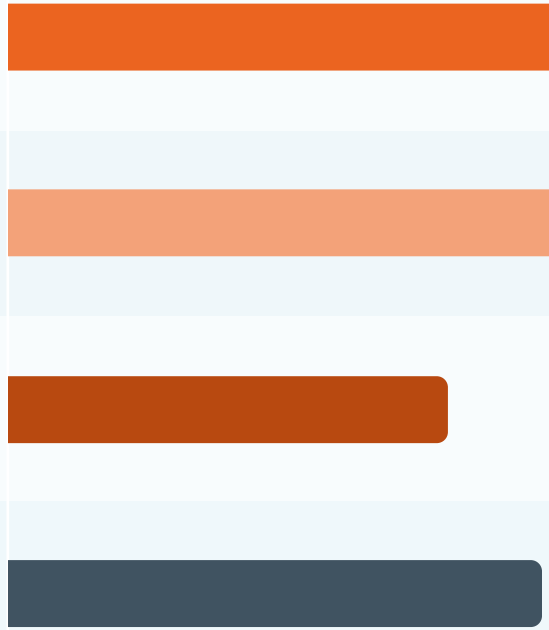
Administered at therapeutic doses without uncontrollable proliferation

Transient Cell Modification

Does not carry risk of genomic integration

Wholly-owned pipeline targets autoimmune disease

Asset	Indications	Discovery/Preclinical	Phase 1	Phase 2	Phase 3
Descartes-08 **Autologous mRNA CAR-T**	**Myasthenia Gravis (MG)**				
	Systemic Lupus Erythematosus (SLE)				
	Pediatric Autoimmune Diseases*				
Descartes-15 **Autologous mRNA CAR-T**	**Autoimmune Diseases****				



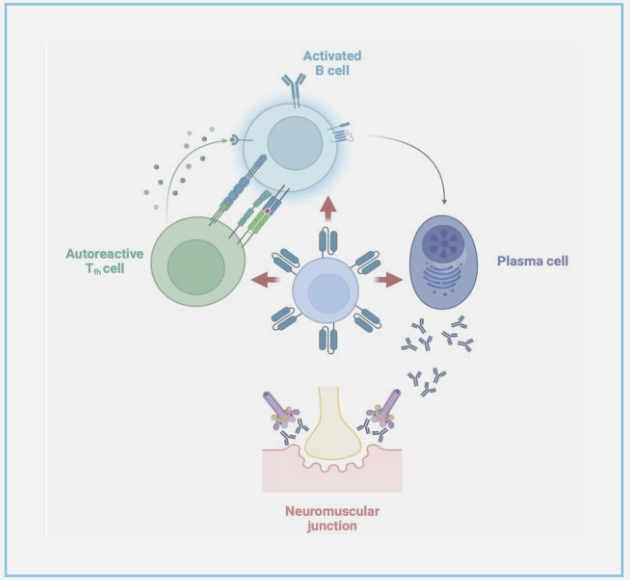
* IND filing made for Phase 2 pediatric basket trial, includes juvenile SLE, juvenile MG and other conditions.
** Dosing in Phase 1 dose escalation trial in myeloma underway.

Descartes-08 is an mRNA CAR T-cell therapy in clinical development for autoimmune disease

Engineered by transfection of autologous CD8+ T cells with mRNA encoding anti-BCMA CAR

Typical lot **processed for infusion within as little as ~3 weeks**

Granted **U.S. FDA orphan and RMAT designations** for generalized myasthenia gravis, and **RPDD** for juvenile dermatomyositis



RMAT, Regenerative Medicine Advanced Therapy
RPDD, Rare Pediatric Disease Designation

FDA, U.S. Food and Drug Administration
BCMA, B-cell maturation antigen

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Descartes-08 in Myasthenia Gravis

Myasthenia gravis is a rare, progressive autoimmune disease with significant unmet need

>120,000

Patients in the U.S. and EU

Significant unmet need remains

Characterized by debilitating fatigue and muscle weakness

Limbs

Respiratory

Ocular

Facial

Current treatments require chronic or frequent administration and have limited durability

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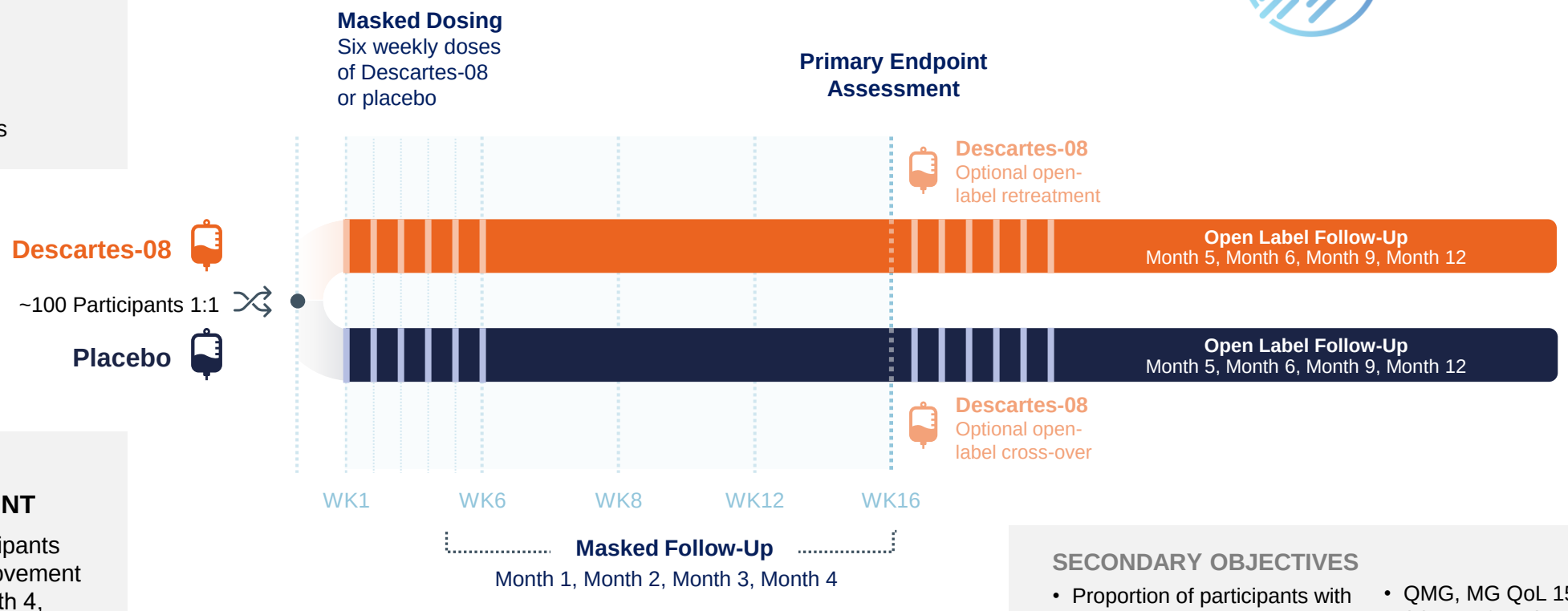
AURORA: Randomized double-blind, placebo-controlled Phase 3 trial of Descartes-08 in AChR Ab+ gMG expected to commence in 1H 2025

aurora TRIAL

INCLUSION CRITERIA

- AChR Ab+
- MGFA Class II-IV
- MG-ADL ≥6
- On stable doses of immunosuppressants



PRIMARY ENDPOINT

- Proportion of participants with MG-ADL improvement of ≥3 points at Month 4, relative to placebo

SECONDARY OBJECTIVES

- Proportion of participants with MGC improvement of ≥4 points at Month 4
- Safety and tolerability
- QMG, MG QoL 15R, MG-ADL (change from baseline to Month 4)
- Quantify clinical effect of Descartes-08 over 1 year

MG-ADL, Myasthenia Gravis Activities of Daily Living scale
gMG, Generalized myasthenia gravis
MGFA, Myasthenia Gravis Foundation of America
MGC, Myasthenia Gravis Composite
MG QMG, Quantitative MG Scores
MG QoL 15R, MG Quality of Life 15-revised
AChR Ab+, Acetylcholine receptor autoantibody positive

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Deep and durable responses maintained over 12 months in participants treated with Descartes-08 in Phase 2b

Deepening responses observed over time

Durable responses observed over time

Deepest responses observed in participants without exposure to prior biologic therapy

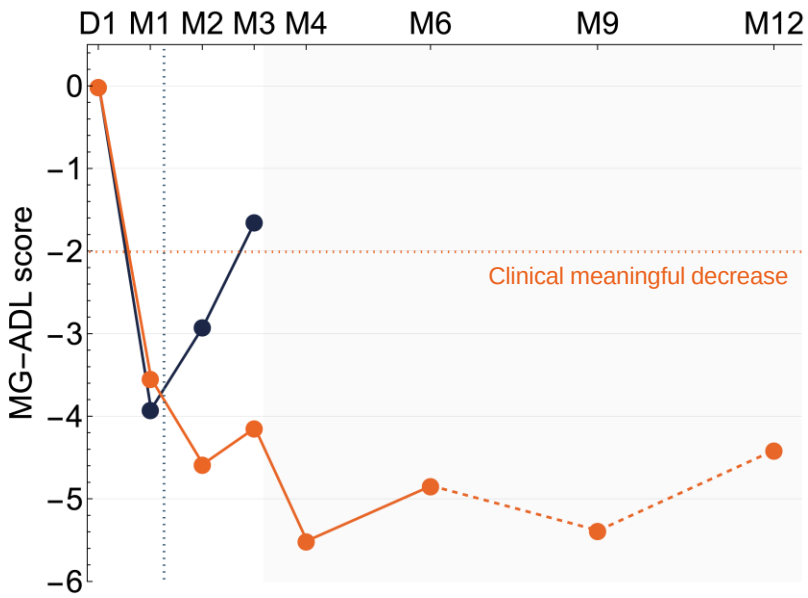
Safety profile continues to support outpatient administration

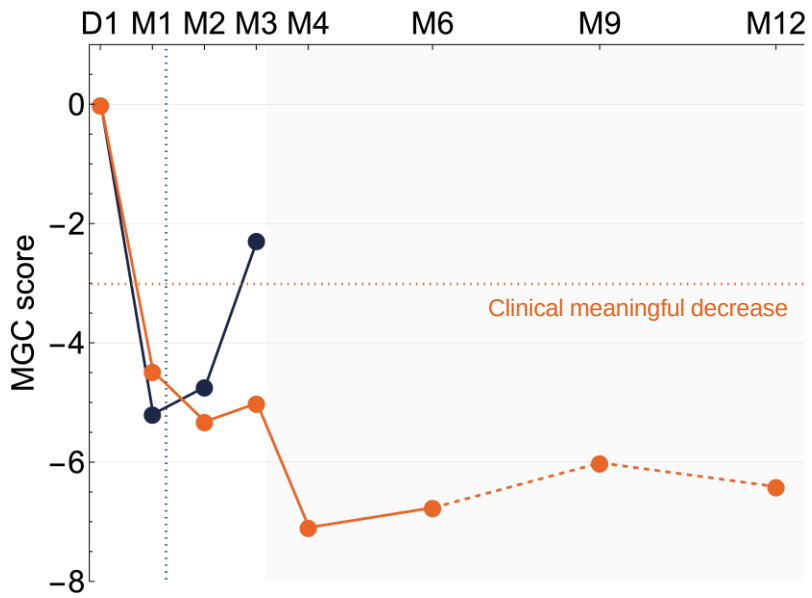
Planned Phase 3 AURORA study design finalized following meeting with U.S. FDA

- Primary endpoint to assess MG-ADL improvement of ≥3 points at Month 4 relative to placebo
- Expected to commence in 1H25

Deepening responses observed in participants treated with Descartes-08

Primary Efficacy Dataset





Descartes-08 Placebo

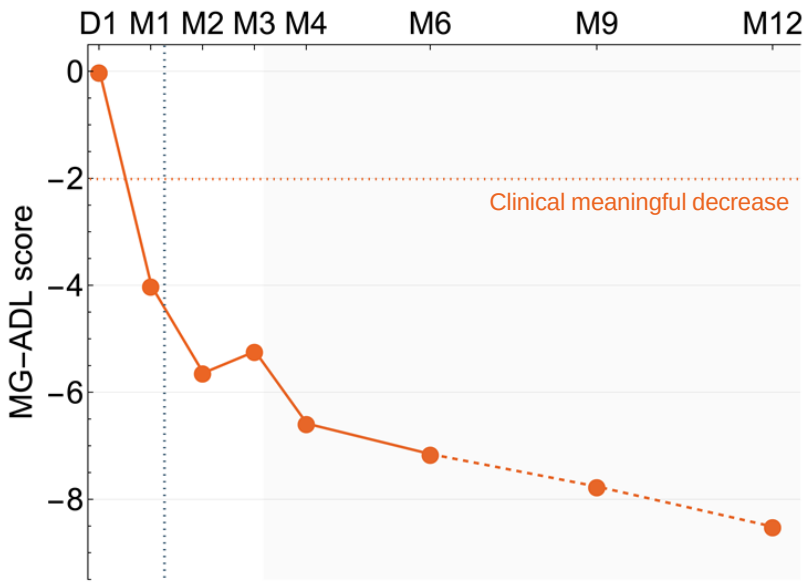
Month 3 (n=14), Month 4 (n=12*), Month 6 (n=12), Month 9 (n=8), Month 12 (n=5)
**Two participants lost to follow-up*

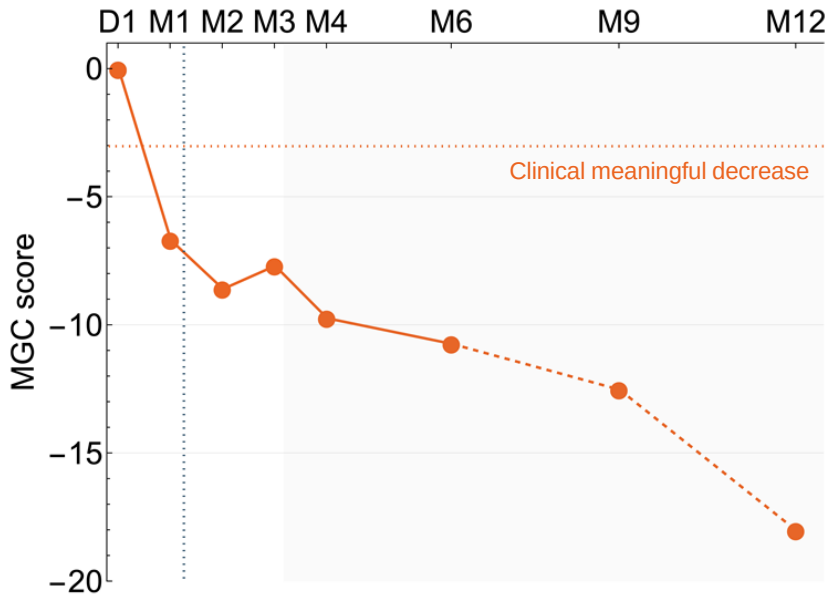
- Average MG-ADL reduction of 5.5 (±1.1) points at Month 4
- 33% of participants achieved minimum symptom expression at Month 6
- 80% of participants reaching Month 12 maintained clinically meaningful response

Minimum symptom expression: MG-ADL 0-1

Deepest responses observed in participants with no prior exposure to complement or FcRn inhibitors

Primary Efficacy Dataset (No Prior Biologics)





Descartes-08

Month 3 (n=9), Month 4 (n=7*), Month 6 (n=7), Month 9 (n=4), Month 12 (n=2)
**Two participants lost to follow-up*

- Average MG-ADL reduction of 6.6 (±1.5) points at Month 4
- 57% of participants achieved minimum symptom expression at Month 6
- 100% of participants reaching Month 12 maintained clinically meaningful response

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Safety profile supports outpatient administration

	Descartes-08 (n=20)			Placebo (n=16)		
	Grade 1	Grade 2	Grade 3	Grade 1	Grade 2	Grade 3
Headache	7 (35%)	4 (20%)		2 (13%)	3 (19%)	
Chills	8 (40%)	4 (20%)				
Nausea	3 (15%)	6 (30%)		1 (6%)	2 (13%)	
Fever	7 (35%)	4 (20%)	1 (5%)			
Fatigue	4 (20%)	1 (5%)		1 (6%)		
Myalgia	4 (20%)	2 (10%)				
Infusion related reaction	1 (5%)	2 (10%)	1 (5%)	1 (6%)		
Muscle weakness	1 (5%)	1 (5%)		1 (6%)		
Arthralgia	1 (5%)	1 (5%)			1 (6%)	
Tachycardia	3 (15%)					
Upper respiratory infection		1 (5%)			1 (6%)	
Herpes simplex reactivation	1 (5%)		1 (5%)			
Dysgeusia	3 (15%)					
Diarrhea	1 (5%)				1 (6%)	
Sweating	1 (5%)			1 (6%)		
Limb edema	1 (5%)	1 (5%)				
Flushing	2 (10%)					
Dyspnea	1 (5%)	1 (5%)				
Insomnia	2 (10%)					
Vomiting	2 (10%)	1 (5%)				
Tremor	2 (10%)					

- **No new type of AEs reported**
- **No hypogammaglobulinemia or increased infections reported**
- **No difference in vaccine titers between Descartes-08 and placebo**

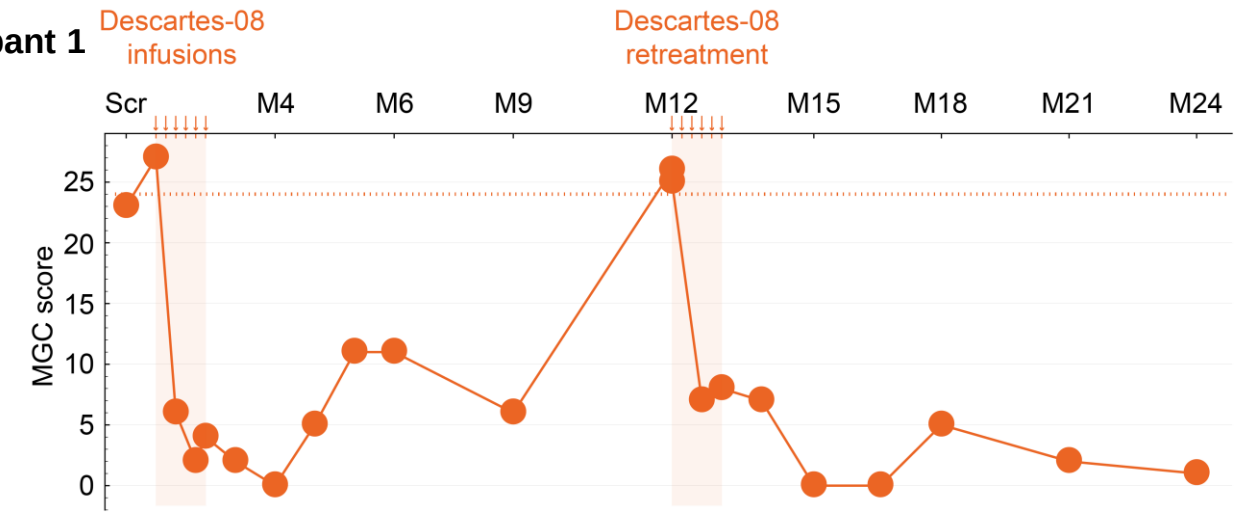
Safety dataset comprises all subjects who received at least one dose of Descartes-08 (n=20) or placebo (n=16).

All Grade 1–2 adverse events deemed possibly, probably or definitely related to the study drug with a cumulative incidence ≥10% and all Grade 3 adverse events deemed possibly, probably or definitely related to the study drug are reported. There were no Grade 4 adverse events

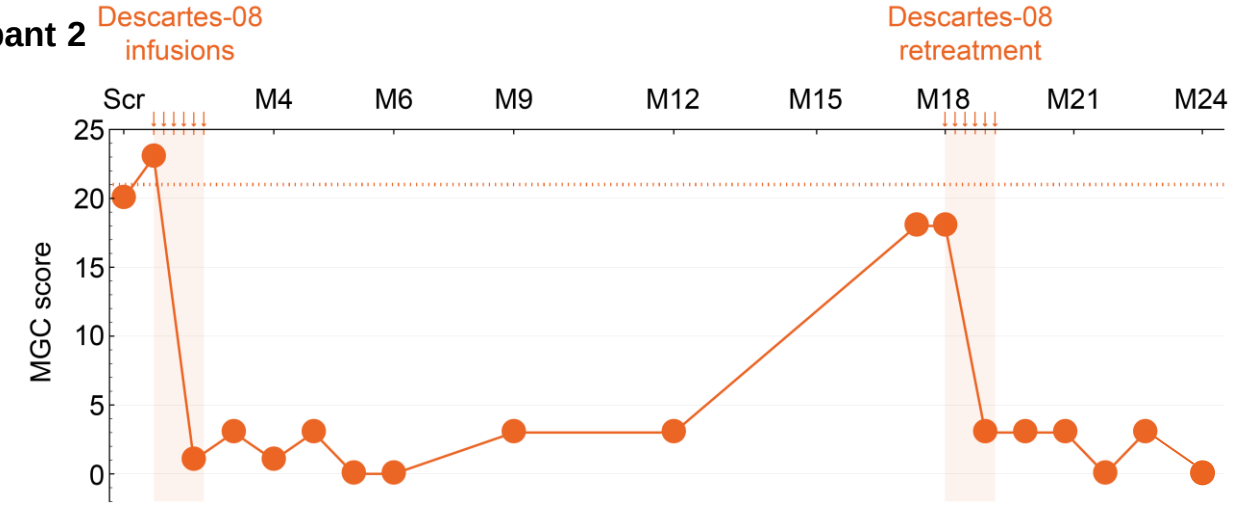
AE, Adverse event

Phase 2a trial update: Descartes-08 retreatment continues to elicit deep and durable responses

Participant 1



Participant 2



- Three participants retreated to date, two of whom maintain minimum symptom expression 2 years after initial treatment
- Third participant achieved 4-point reduction in MG-ADL and 6-point reduction in MGC at the most recent, Month 2 follow-up of retreatment

Manuscript submitted for peer review; pre-print available at medRxiv.org.

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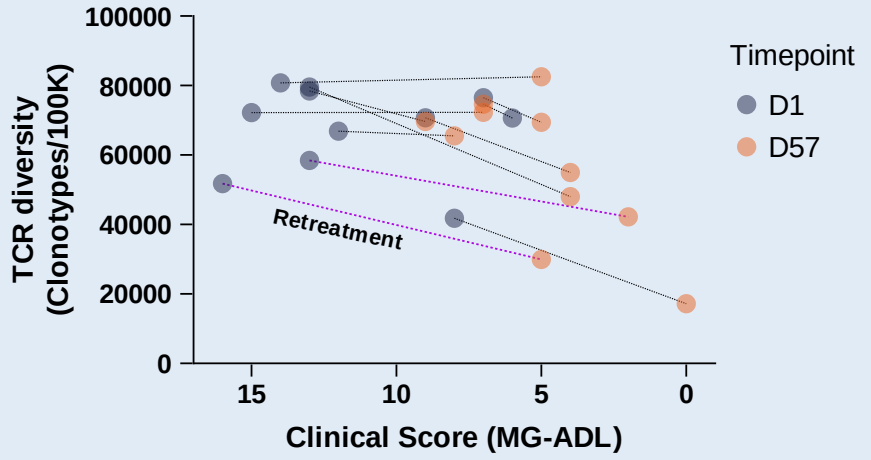
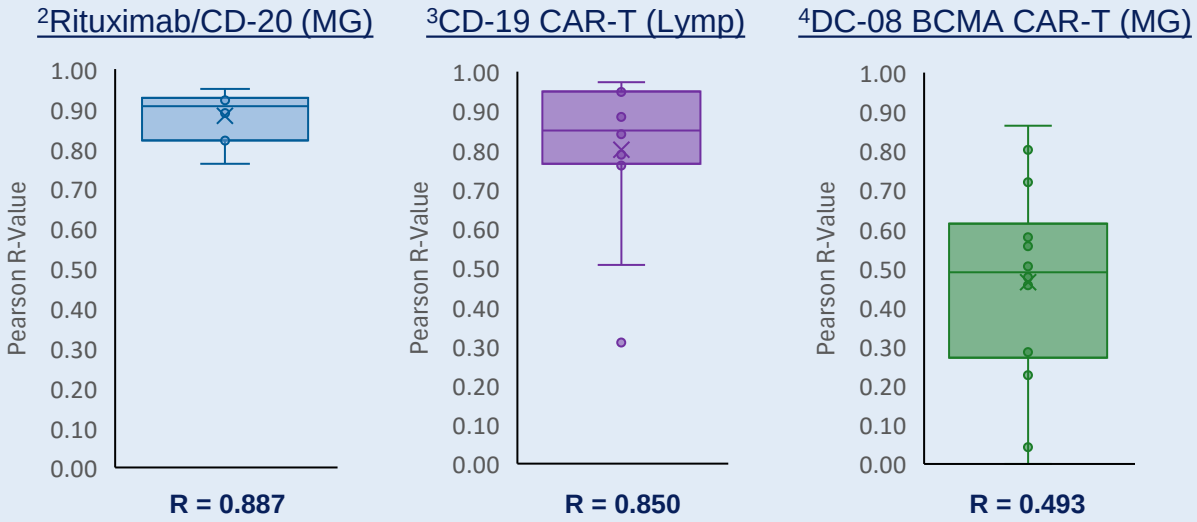
Descartes-08 focuses the T-cell repertoire and selectively alters the autoreactome, showing clear biological activity

Descartes-08 focuses the T-cell repertoire in a manner that correlates with clinical effect



p=0.048 (Wilcoxon signed rank test) TCR Diversity D57 vs D1

Descartes-08 selectively alters the self-reactive branch of the antibody repertoire (i.e., autoreactome[1])



Data show Clinical Score and TCR Sequencing TCR Diversity (Downsampled Rearrangements) in Phase 2a samples analyzed at Adaptive Biotechnologies (R06 dataset). For certain subjects where TCR sequencing sample data was unavailable, D1 data was imputed from Screen, and D57 data was imputed from D85. Samples from one re-treated patient were analyzed as indicated. P-value is provided for Wilcoxon matched-pairs signed rank test on all primary-treatment data pairs from D1 vs D57.

[1]Bodansky et al., *Journal of Clinical Investigation* **2024**, doi: 10.1101/2023.12.19.23300188.

Serum analysis of [2]Myasthenia gravis patients receiving Rituximab targeting CD20+ B cells, [3]lymphoma patients receiving conventional CD19 DNA CAR-T, or [4]gMG patients following infusion with DC-08. Data compare D85 to D1 for MG open label cohort (N=13).

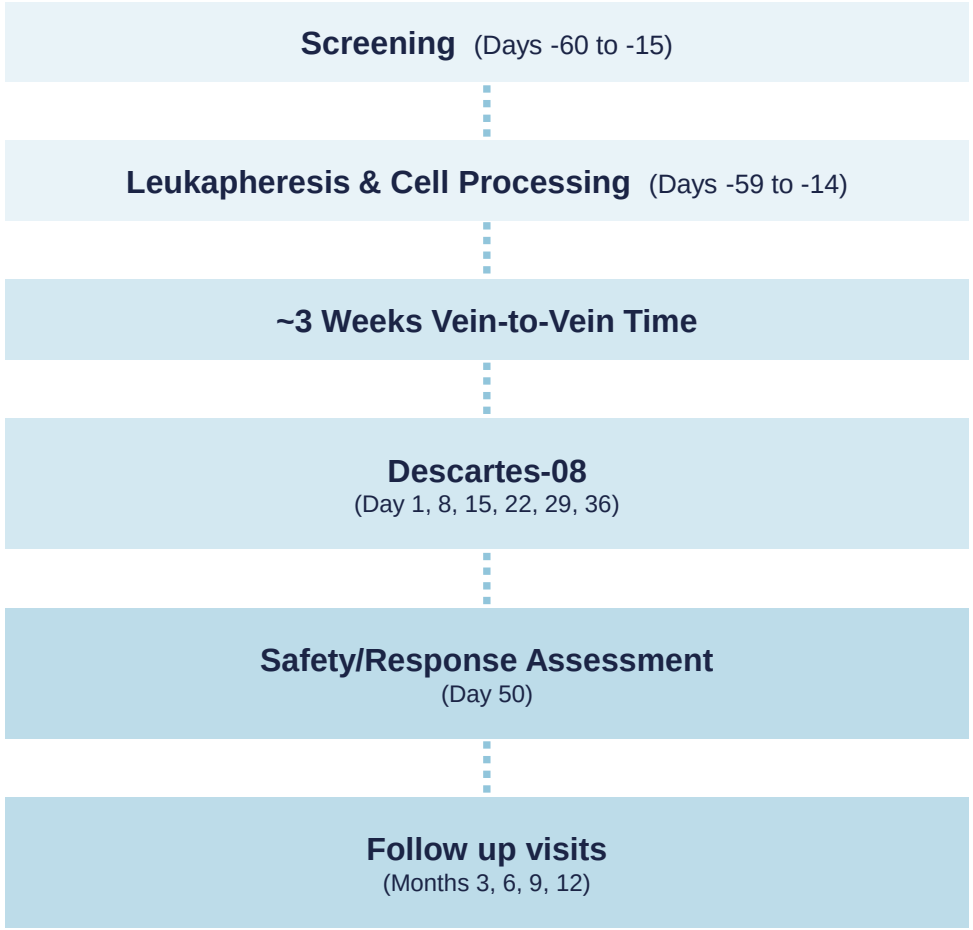
TCR, T-cell receptor

Descartes-08
Additional Indications

Exploring potential of Descartes-08 in Systemic Lupus Erythematosus (SLE)

PHASE 2 TRIAL ONGOING

- Open-label trial in up to 30 adults with moderate to severe multi-refractory SLE and no CNS involvement
- Designed to assess safety, tolerability, and manufacturing feasibility of Descartes-08 in patients with SLE
- Secondary objectives include standard measures of clinical activity in SLE:
  - Systemic Lupus Erythematosus Disease Activity Index 2000 (SLEDAI-2K)
  - Physician Global Assessment (PGA)
  - Systemic Lupus Erythematosus Responder Index (SRI)
  - British Isles Lupus Assessment Group (BILAG)–based Composite Lupus Assessment (BICLA)
- Data readout expected in 2H25



CNS, Central nervous system

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Intend to leverage the potential of Descartes-08 across multiple clinical programs

MG

- Plan to initiate Phase 3 AURORA clinical trial in 1H 2025
- RMAT designation expected to support efficient development plan in collaboration with FDA

SLE

- Open-label Phase 2 trial ongoing
- Data readout expected in 2H25

Potential New Indications

- IND application filed for pediatric basket trial in certain autoimmune diseases

Leveraging clinical proof-of-concept of Descartes-08 in MG to expand autoimmune pipeline

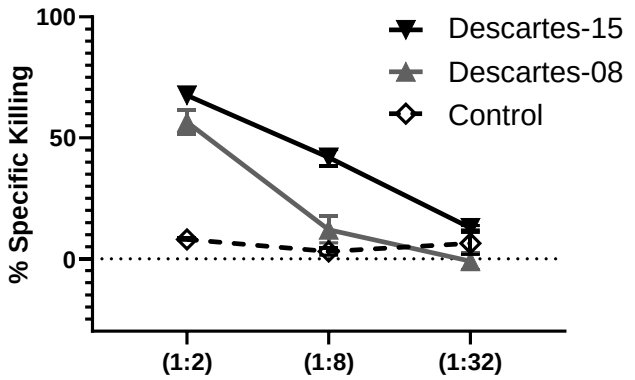
Descartes-15

Descartes-15, a next generation anti-BCMA mRNA CAR-T with >10x potency observed in preclinical studies

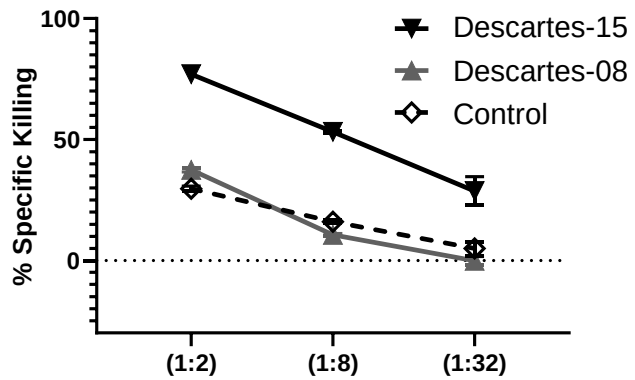
Descartes-15 is an anti-BCMA mRNA CAR-T with potential disruptive features:

- Engineered for maximum potency and CAR stability, even in the presence of target-driven suppression of CAR
- Clinical strategy expected to leverage safety and clinical activity data from Descartes-08
- Phase 1 trial ongoing

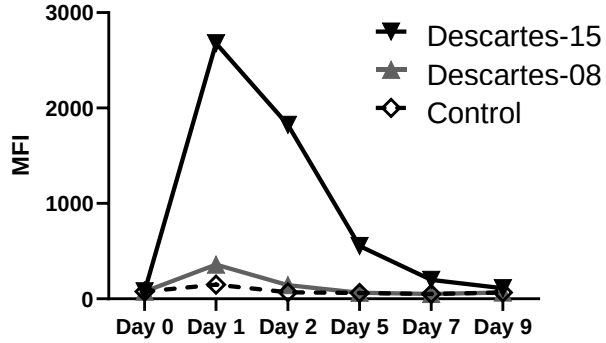
Potent killing (single target exposure)



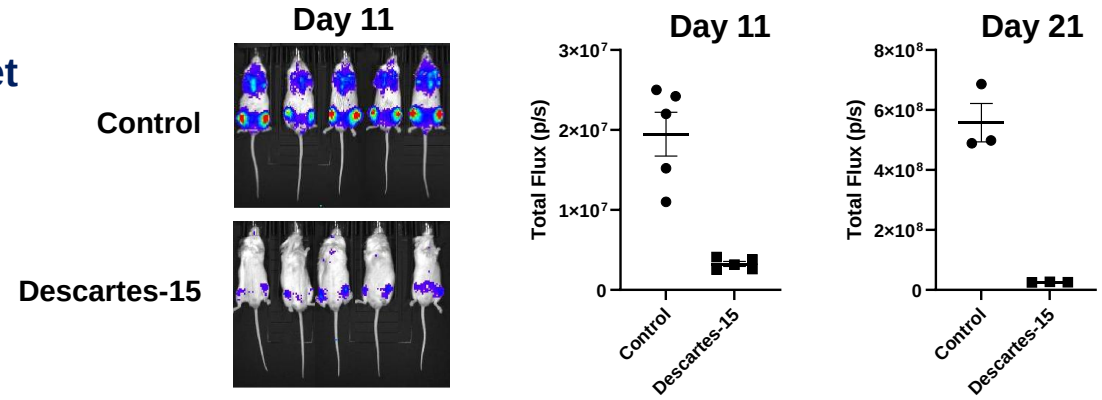
Persistent killing (multiple exposures)



Superior CAR expression



Efficient killing of BCMA+ target cells*



*MM1-S disseminated myeloma model in NSG mice infused with either control T-cells or Descartes-15.

Cartesian therapeutics

Wholly-owned, in-house manufacturing

~30,000 sq. ft. state-of-the-art cGMP facility

Facility located in Frederick, MD

FUTURE GROWTH

Clinical and commercial manufacturing scale capabilities support maturing pipeline and future growth

QUICK TO ADAPT

Flexibility to quickly adapt to changes in processes or needs

WHOLLY-OWNED

Ownership of quality control and production timelines

COST EFFICIENT

Potential cost efficiency

Cartesian therapeutics

STRONG FINANCIAL POSITION:

Expected to Support Pipeline Through Key Milestones

$220.9M

In cash, cash equivalents and restricted cash as of 9/30/24

<70 FULL TIME EMPLOYEES

Based in Gaithersburg, MD and Frederick, MD

25.8M

Basic shares outstanding as of 12/31/24

33.1M

Fully diluted shares outstanding*

* As of 12/31/24. Further includes Series A Non-Voting Convertible Preferred Stock and Series B Non-Voting Convertible Preferred Stock that remain subject to beneficial ownership limitations that are convertible into shares of common stock and includes outstanding options, RSUs and warrants.

Cartesian therapeutics

Our team | Management

Carsten Brunn, PhD
PRESIDENT AND CEO

Blaine Davis
CHIEF FINANCIAL OFFICER

Metin Kurtoğlu, MD, PhD
CHIEF TECHNOLOGY OFFICER

Miloš Miljković, MD
CHIEF MEDICAL OFFICER

Chris Jewell, PhD
CHIEF SCIENTIFIC OFFICER

Jessica Keliher
CHIEF PEOPLE OFFICER

Emily English, PhD
CHIEF OPERATIONS OFFICER

Matthew Bartholomae
GENERAL COUNSEL, SECRETARY

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Key Takeaways

Pioneering mRNA Cell Therapies

Pipeline designed to expand the reach of cell therapy to autoimmunity

Experienced Leadership Team

Focused on disciplined investment and creating value for stockholders and patients

Strong Balance Sheet to Support Maturing Pipeline

Current cash expected to support Descartes-08 through the completion of Phase 3 in mid-2027

Maturing Pipeline with Expected Near-term Catalysts

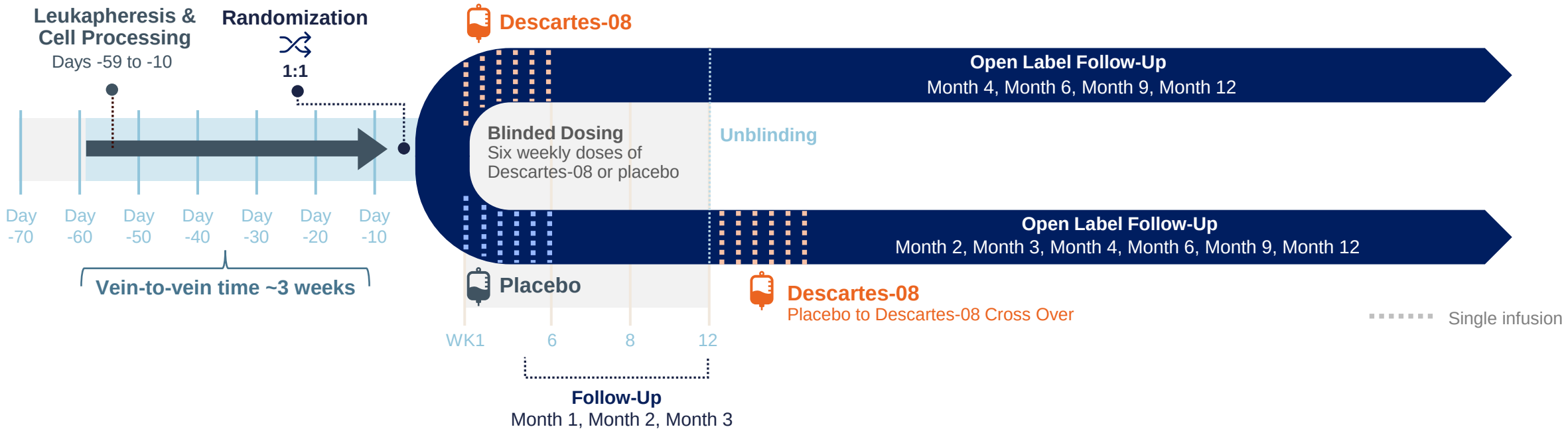
- **Descartes-08 in MG**: Phase 3 AURORA trial initiation planned for 1H25
- **Descartes-08 in SLE**: Enrollment in Phase 2 open-label trial ongoing; data readout expected in 2H25
- **Descartes-08 Pediatric Basket Trial**: IND filing made for Phase 2 study
- **Descartes-15**: Phase 1 first-in-human trial ongoing

Cartesian®

therapeutics

Appendix

Phase 2b trial: double-blind, placebo-controlled clinical trial of Descartes-08 in patients with myasthenia gravis



INCLUSION CRITERIA

- Non-MuSK-MG
- MGFA Class II-IV
- MG-ADL ≥6
- Severe disease despite stable doses of immunosuppressants

PRIMARY ENDPOINT

- Proportion of patients with MG Composite improvement of ≥5-points at Month 3, relative to placebo
- Predefined primary efficacy dataset

SECONDARY OBJECTIVES

- Safety and tolerability from predefined safety dataset
- Quantify clinical effect of Descartes-08 over 1 year
- QMG, MG QoL 15R, MG-ADL (change from baseline to Month 3)
- Compare effect of Descartes-08 versus placebo on MG scales (change from baseline to Month 3) in patients who cross over from placebo to Descartes-08

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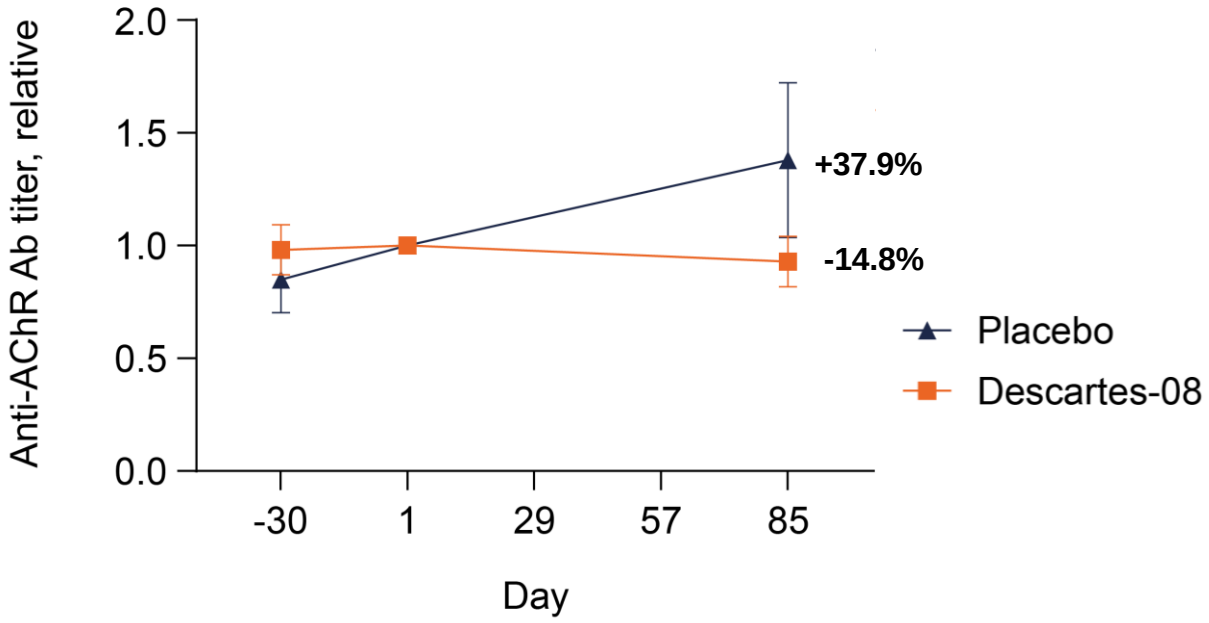
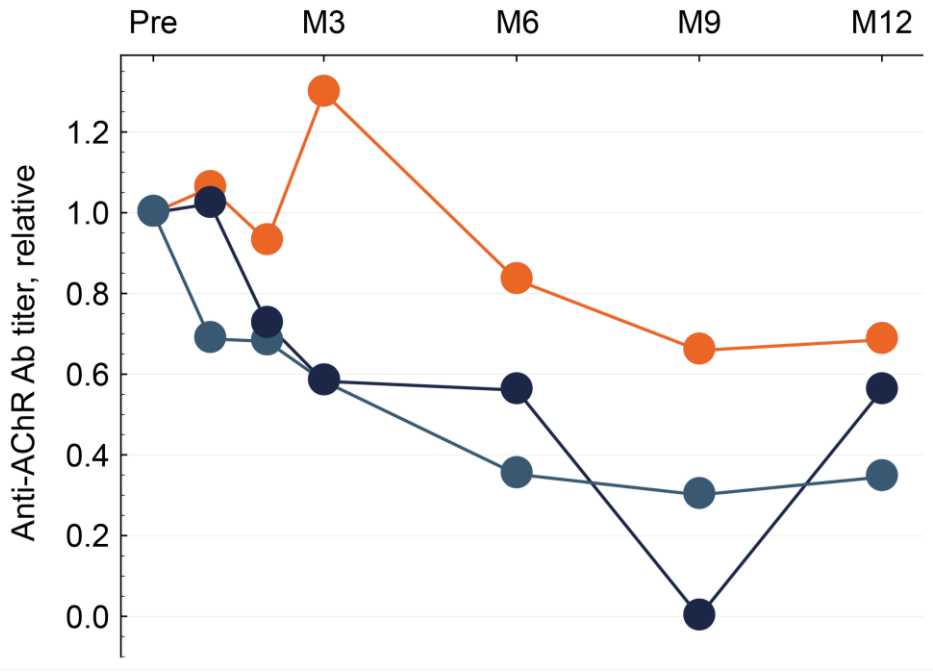
Approximately 15% reduction in AChR antibody titer at Month 3 is in line with Phase 2a data



Average reduction (±SEM) in AChR antibody in participants with baseline levels above LLOQ randomized to Descartes-08 (n=12) vs. Placebo (n=9).

Phase 2a data



Individual Anti-AChR antibody titers in all participants receiving six once-weekly infusions in the Phase 2a trial with detectable baseline levels (n=3).

SEM, Standard error of the mean
LLOQ, Lower limit of quantification

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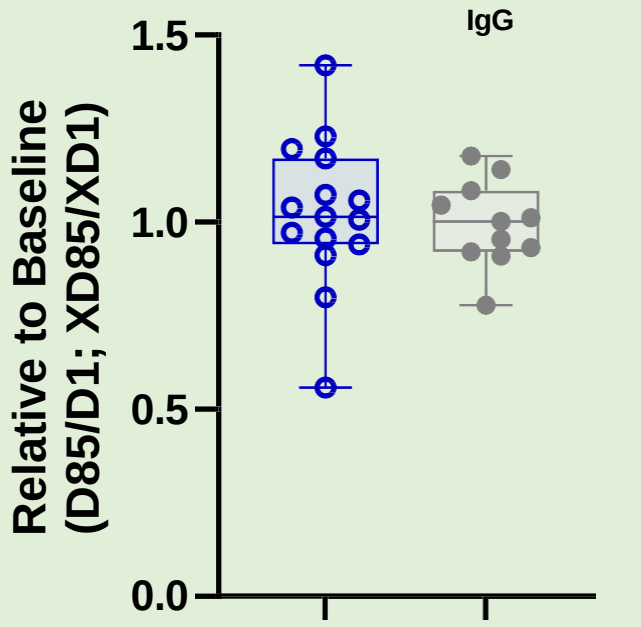
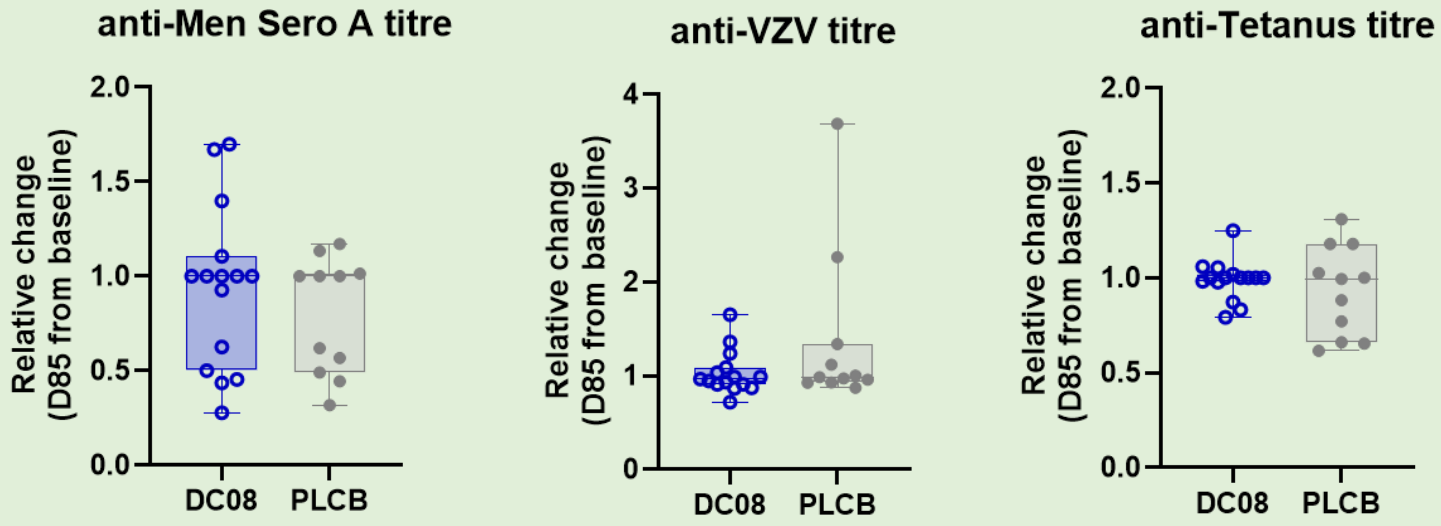
Descartes-08 observed not to deplete broader antibody repertoire or decrease vaccine titers for common viruses

No significance change in Ig at primary end point (D85) vs. Day 1[1]



Descartes-08 (DC08) Placebo (PLCB)

No significant change in common vaccine titers at primary end point (Day 85) relative to Day 1[2]



Not shown: anti-Men Sero C, anti-Men Sero W135, anti-Men Sero Y, anti-Diphtheria, anti-Measels, anti-Mumps and anti-Rubella titers

Descartes-08 (DC08) Placebo (PLCB)

1. Data indicate change in Ig levels for each participant in the miTT group (n = 26) at Day 85 relative to Day 1. Data are individual values, median, range and IQR.
2. Data indicate change in vaccines titers for each participant in the mITT group (n=26) at Day 85 relative to Day 1. Data are individual values, median, range and IQR.

Ig, Immunoglobulin
VZV, Varicella zoster virus
mITT, Modified intent-to-treat

Cartesian therapeutics

Descartes-08 is designed for dual action, precisely targeting two key BCMA+ cell populations involved in a spectrum of autoimmune diseases

Descartes-08 is designed to target BCMA, a surface antigen expressed on ***plasma cells/plasmablasts*** and ***plasmacytoid dendritic cells***

PLASMA CELLS (PCs) AND PLASMABLASTS

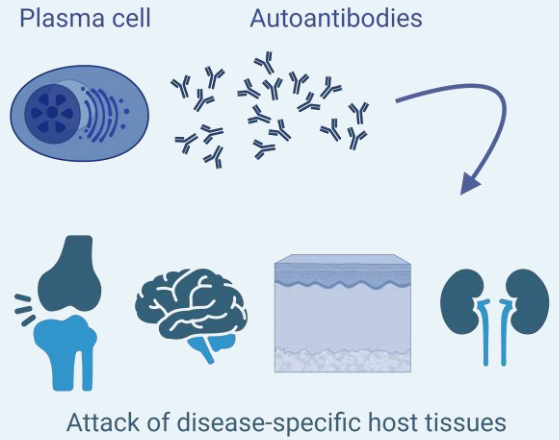
- PCs, plasmablasts and proliferating B cells targeted by Descartes-08 represent a tiny fraction of B cells
- These cells are entirely responsible for secreting pathogenic autoantibodies
- During autoimmunity, autoantibodies attack host tissue and drive inflammation

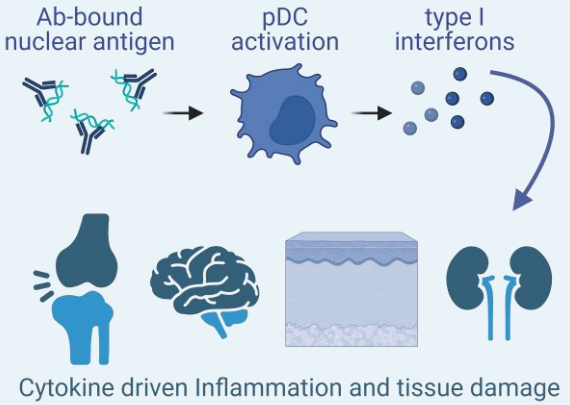
PLASMACYTOID DENDRITIC CELLS (pDCs)

- pDCs, which Descartes-08 is designed to target, are a rare subset of antigen-presenting cells
- These cells secrete high levels of cytokines (i.e., type I interferons) that cause inflammation and tissue damage during many human autoimmune diseases
- pDCs are increased in patients with autoimmunity (e.g., SLE) and interfere with optimal treatment

Several autoimmune disease segments involve pathogenic contributions from ***both PCs/plasmablasts*** and ***pDCs***, including rheumatology, nephrology, neurology, and others

Selectively deleting PCs/plasmablasts and pDCs, if successful, may create a differentiated cell therapy platform





Cartesian therapeutics