CARTESIAN THERAPEUTICS

Topline Data from Phase 2b Trial of Descartes-08 in Patients with Myasthenia Gravis

July 2024

Disclosures and forward-looking statements

Disclosures

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Deep, durable responses and favorable safety profile observed in patients with MG

Novel design: randomized double-blind placebo-controlled trial of engineered cell therapy in autoimmunity

- Met primary endpoint
  - 71% response rate at Month 3 for Descartes-08 patients vs. 25% for placebo ($p<0.05$)
- Deep, durable responses observed in patients treated with Descartes-08
- Safety profile continues to support outpatient administration
- Data support advancement to Phase 3

MG, 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

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

No Lymphodepletion	• mRNA cell therapy does not require lymphodepleting chemotherapy • No associated cytopenia, secondary malignancies, or other chemotherapy toxicities
Administered Outpatient	• Reduced burden on patients, caregivers, and healthcare system • Convenient dosing schedule (six weekly infusions)
Transient Cell Modification	• mRNA does not replicate and allows for more predictable response • Does not carry risk of genomic integration
Delivered at Therapeutic Levels	• Administered at therapeutic doses without uncontrollable proliferation • Transient CAR protein expression due to mRNA degradation and natural dilution
In-House cGMP Manufacturing	• Control over product quality and production • Autologous approach with approximately three weeks from apheresis to first infusion

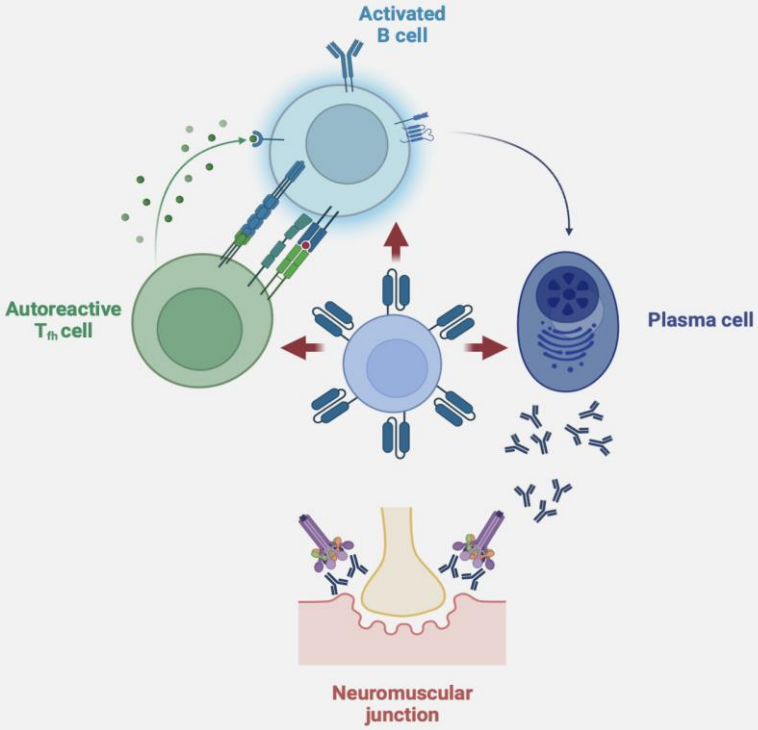
CAR, Chimeric antigen receptor
cGMP, Current good manufacturing practices

Descartes-08 is believed to be the first mRNA CAR-T in clinical development for autoimmune disease

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

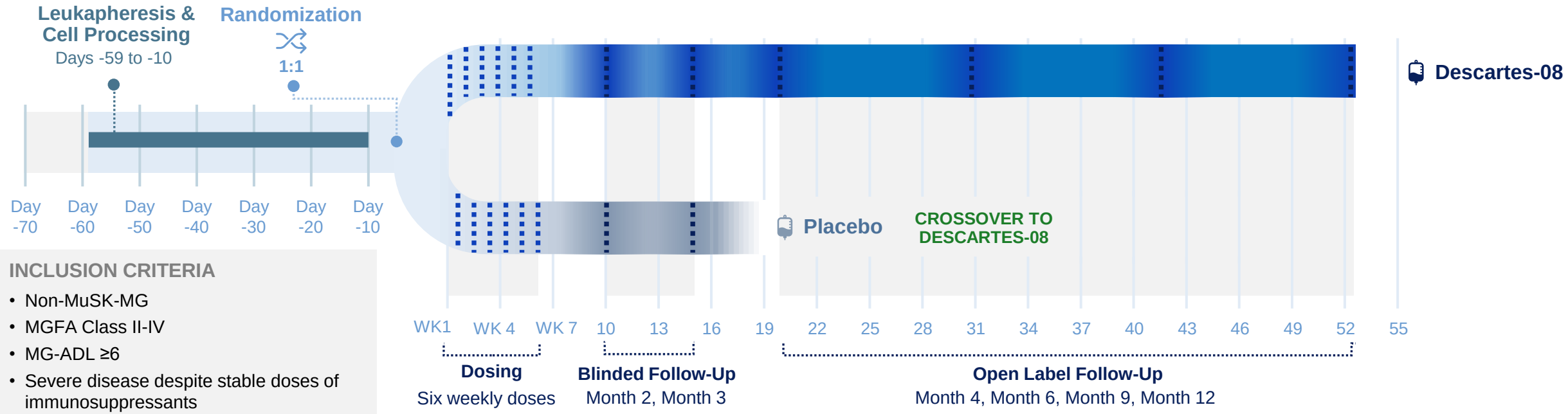
Typical lot **processed for infusion within ~3 weeks**

Granted **U.S. FDA orphan** and **RMAT designations** for generalized myasthenia gravis



FDA, Food and Drug Administration
RMAT, Regenerative Medicine Advanced Therapy

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

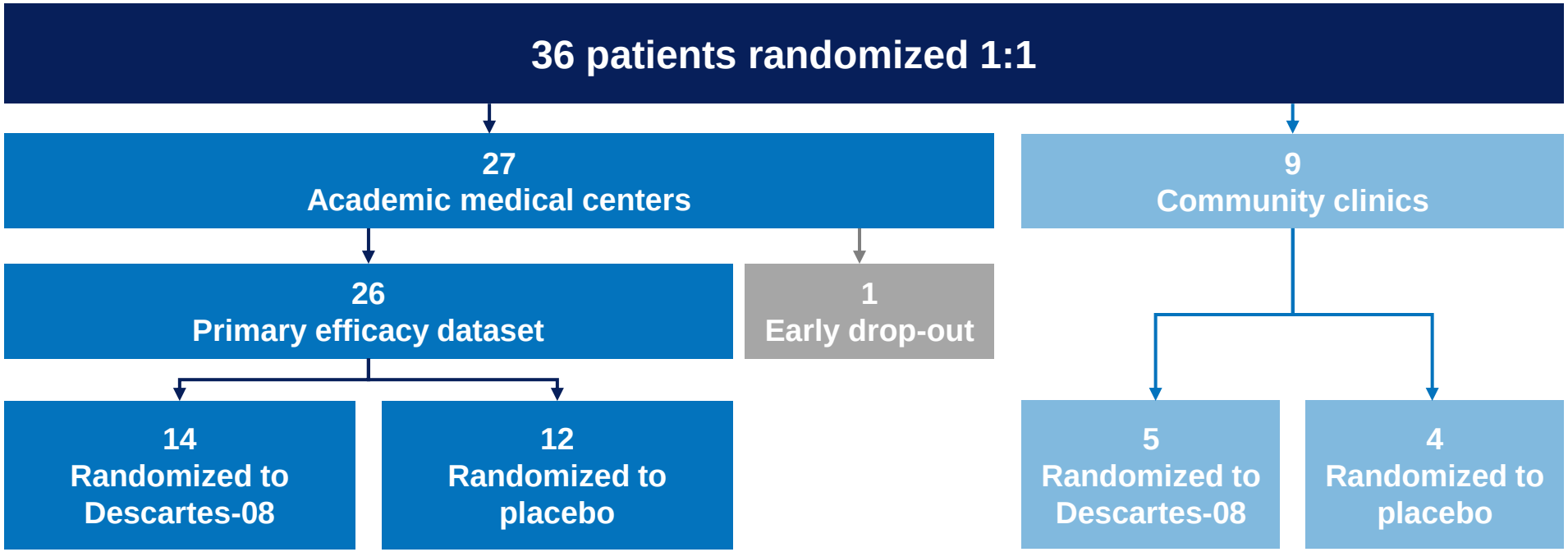
- Predefined primary efficacy dataset

SECONDARY OBJECTIVES:

- Safety and tolerability
  - 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

MGFA, Myasthenia Gravis Foundation of America
MG-ADL, Myasthenia Gravis Activities of Daily Living scale
QMG, Quantitative MG Scores
MG QoL 15R, MG Quality of Life 15-revised

14 patients received Descartes-08 and 12 patients received placebo in the pre-specified primary efficacy dataset



- Consistent with current IND, primary efficacy dataset includes modified ITT population enrolled at academic medical centers qualified for MG Composite assessment with at least one post-baseline follow-up.
- Safety dataset includes all participants at academic medical centers and community clinics who received at least one dose of Descartes-08 or placebo.

IND, Investigational New Drug Application
ITT, Intention to Treat

Baseline characteristics: highly symptomatic patient population with severe disease

		Descartes-08	Placebo	Total
	Mean age, years (SD)	56.7 (16.7)	60 (13.4)	58.2 (15.0)
	Female	10 (71%)	6 (50%)	16 (62%)
	Male	4 (29%)	6 (50%)	10 (38%)
Weight	**Mean weight, kg (SD)**	94.1 (20.7)	104.0 (26.6)	98.7 (23.7)
Race and ethnicity	White, non-Hispanic	12 (86%)	12 (100%)	24 (92%)
	Other	2 (14%)	0 (0%)	2 (8%)
MGFA class at screening	II	4 (29%)	3 (25%)	7 (27%)
	III	9 (64%)	9 (75%)	18 (69%)
	IV	1 (7%)	0 (0%)	1 (4%)
Median age of disease onset, years (range)		55 (16–76)	50 (25-71)	51 (16–76)
Median duration of disease, years (range)		5 (2-23)	10 (4–26)	6 (2–26)
MG antibody status	Anti-AChR antibody	10 (71%)	9 (75%)	19 (73%)
	Anti-LRP4 antibody	1 (7%)	0 (0%)	1 (4%)
	Seronegative1	3 (21%)	3 (25%)	6 (23%)
Mean baseline scores (SD)	QMG	16.9 (7.2)	15.1 (4.0)	15.1 (4.0)
	MG-ADL	10.1 (2.9)	10.3 (3.2)	10.3 (3.2)
	MGC	16.1 (6.4)	16.1 (4.0)	16.1 (5.4)
	MG-QoL-15r	19.5 (7.7)	17.3 (4.7)	18.5 (6.5)

1 for AChR, MuSK, and LRP4 antibodies
MGC, MG Composite

Prior and ongoing treatments: heavily pre-treated patient population

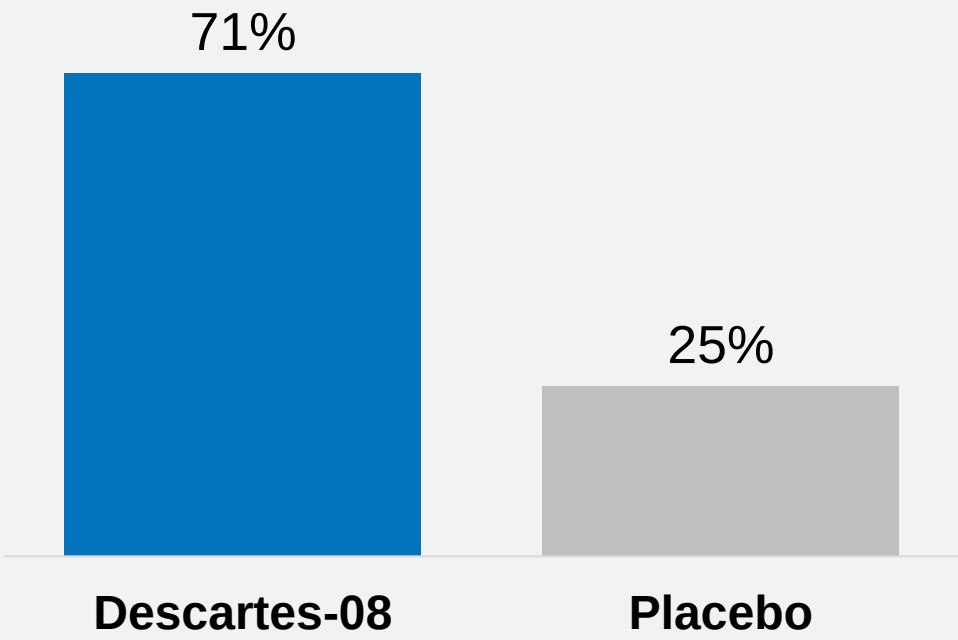
		Descartes-08	Placebo	Total
Previous myasthenia gravis therapies (standard of care)	Pyridostigmine	9 (64%)	8 (67%)	17 (65%)
	Prednisone	8 (57%)	6 (50%)	14 (54%)
	Other immunosuppressants	8 (57%)	9 (75%)	17 (65%)
	Complement inhibitor	3 (21%)	5 (42%)	8 (31%)
	FcRN antagonist	4 (29%)	5 (42%)	9 (35%)
Previous intravenous immunoglobin		10 (71%)	10 (83%)	20 (77%)
Previous plasma exchange		3 (21%)	6 (50%)	9 (35%)
Diagnosis of thymoma*		0 (0%)	5 (42%)	5 (19%)
Previous thymectomy		3 (21%)	7 (58%)	10 (38%)
Previous MG crisis requiring intubation		2 (14%)	0 (0%)	2 (8%)
MG ongoing therapy	Pyridostigmine	9 (69%)	7 (58%)	16 (62%)
	Prednisone	8 (57%)	4 (33%)	12 (46%)
	Azathioprine	5 (21%)	1 (8%)	4 (15%)
	Mycophenolate mofetil	2 (14%)	5 (41%)	7 (27%)
	Complement inhibitor	1 (7%)	2 (14%)	3 (12%)

*Significant imbalance ($p<0.05$)

Trial met primary endpoint with statistical significance

- Responders observed to have ~3x greater improvements than clinically meaningful*
- Data support advancement to Phase 3

Proportion of MG Composite Responders (≥5-point reduction) at Month 3

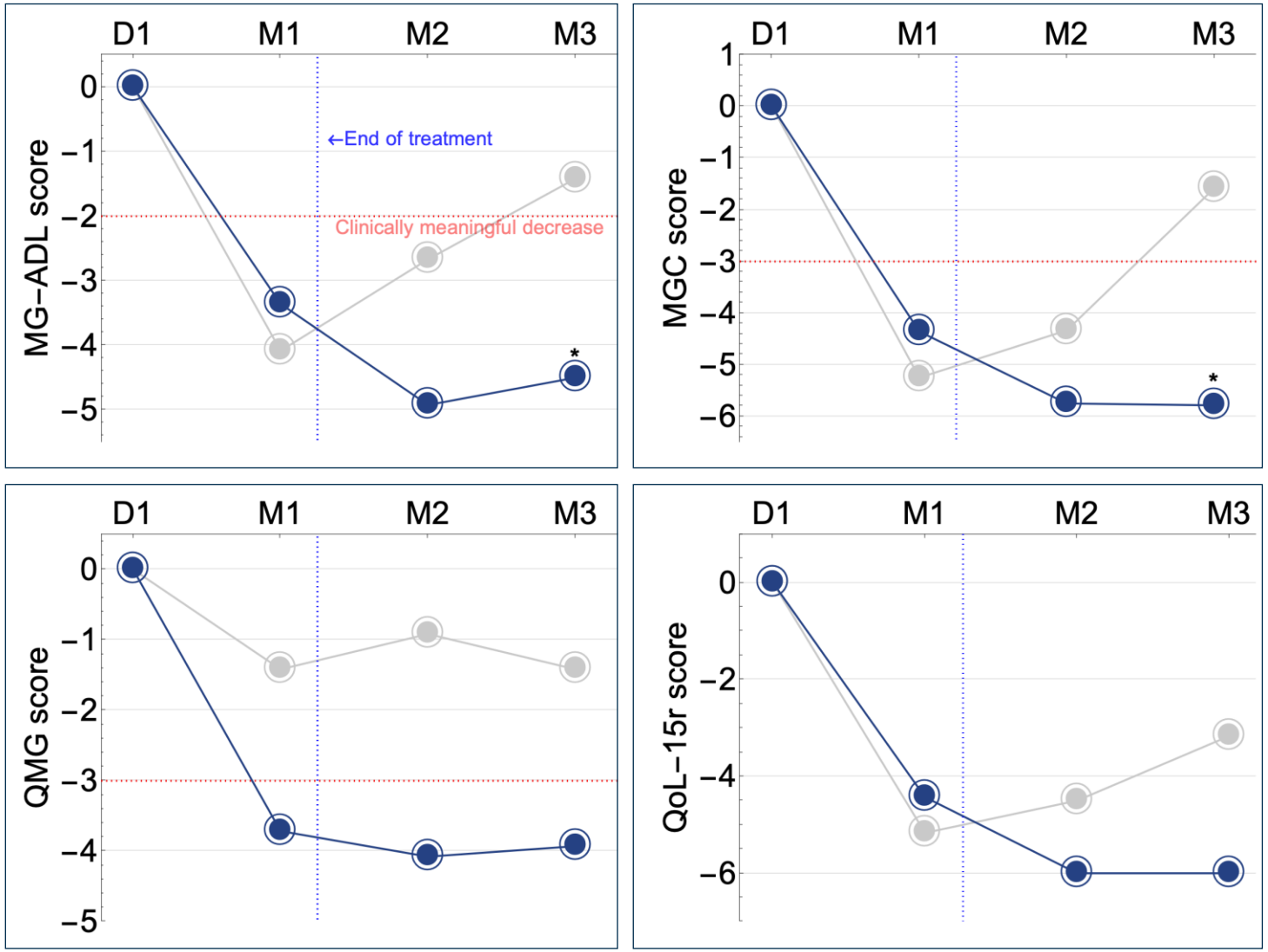


p-value: 0.018

Responders: Descartes-08, n= 10/14; placebo, n=3/12
Odds ratio 7.5 (95% CI, 1.3, 43)
*Clinically meaningful response is a three-point reduction from baseline

Statistically significant improvements observed in Descartes-08 patients at Month 3 assessment

- **Non-responders (n=4)**
  - 1 LRP4+ MG non-responder at Month 3 onward
  - 1 additional non-responder at Month 3 onward
  - 1 responded during open label follow-up
  - 1 has not reached 1st open label follow-up
- **Placebo response generally in line with expectations**

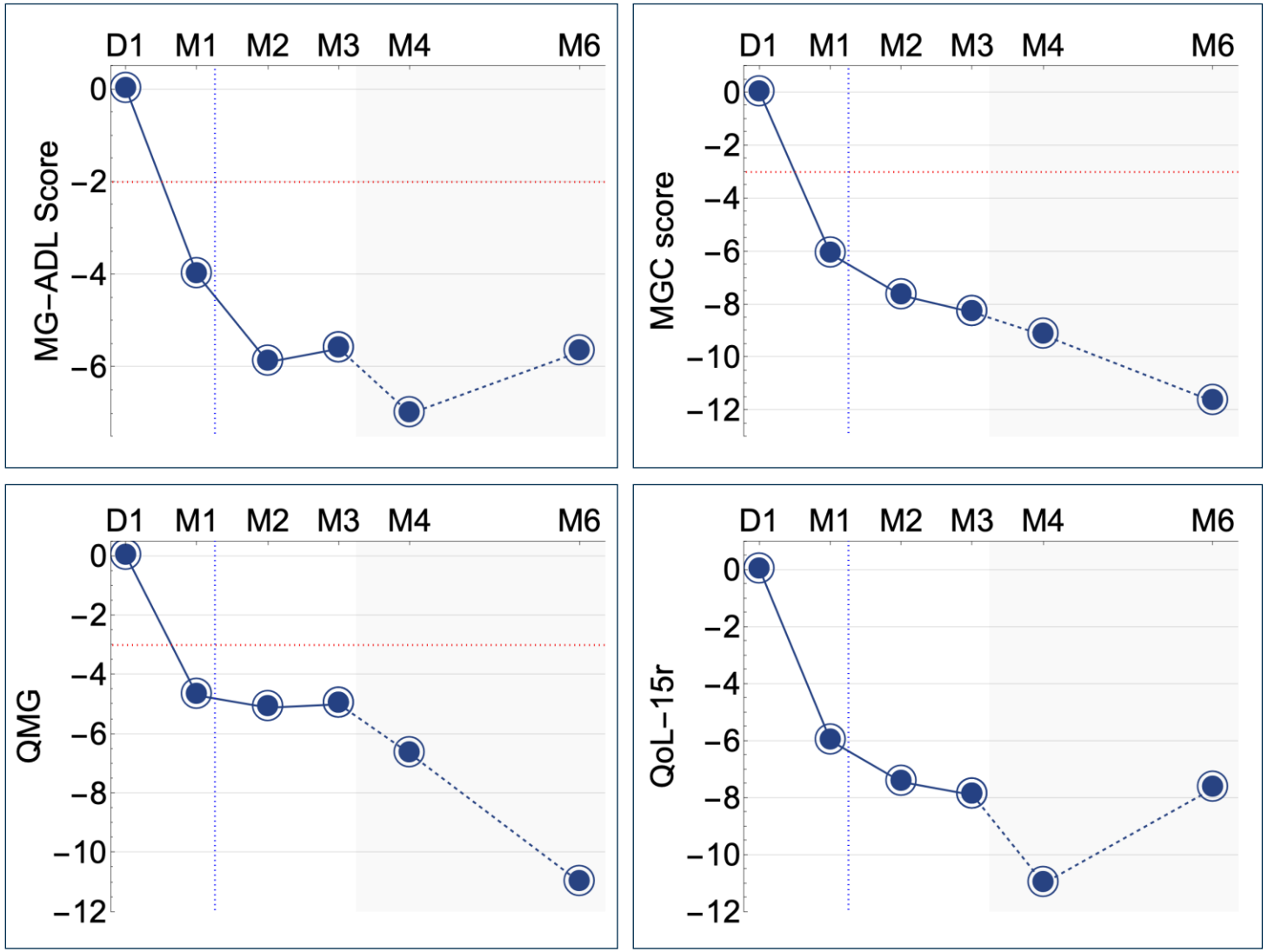


Mean decrease from Baseline in the prespecified primary efficacy population (n=26)
- p<0.05 by Mann-Whitney U test at Month 3 in MGC and MG-ADL

LRP4+, low-density lipoprotein receptor-related protein 4

Deep and durable responses observed in Descartes-08 responders through Month 6

- **Results consistent with Phase 2a open-label trial findings**



Mean decrease from Baseline in MGC Responders (participants who achieved a ≥5-point reduction in MGC at Month 3, n=10. Month 4 n=5, Month 6 n=3.

Observed safety results support outpatient administration and in line with Phase 2a observations

- No cytokine release syndrome
- No neurotoxicity or ICANS
- Most AEs were transient or mild

	Descartes-08 (n=19)			Placebo (n=17)		
	Grade 1	Grade 2	Grade 3	Grade 1	Grade 2	Grade 3
Headache	6 (32%)	4 (21%)		2 (12%)	3 (18%)	
Chills	7 (37%)	4 (21%)		1 (6%)		
Nausea	2 (11%)	5 (26%)		2 (12%)	2 (12%)	
Fever	6 (32%)	3 (17%)	1 (6%)			
Fatigue	5 (26%)	1 (5%)		1 (6%)		
Myalgia	3 (16%)	3 (16%)		1 (6%)		
Infusion related reaction	1 (5%)	2 (11%)	1 (6%)	1 (6%)		
Muscle weakness	1 (5%)	1 (5%)		1 (6%)		
Arthralgia		1 (5%)		1 (6%)	1 (6%)	
Tachycardia	3 (16%)					
Herpes simplex reactivation	2 (11%)		1 (6%)			
Dysgeusia	3 (16%)					
Diarrhea	1 (5%)				1 (6%)	
Sweating	1 (5%)			1 (6%)		
Limb edema	1 (5%)	1 (5%)				
Flushing	2 (11%)					
Dyspnea	1 (5%)	1 (5%)				
Insomnia	2 (11%)					
Vomiting	2 (11%)					
Tremor	2 (11%)					

Safety dataset comprises all subjects who received at least one dose of Descartes-08 (n=19) or placebo (n=17)
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 update

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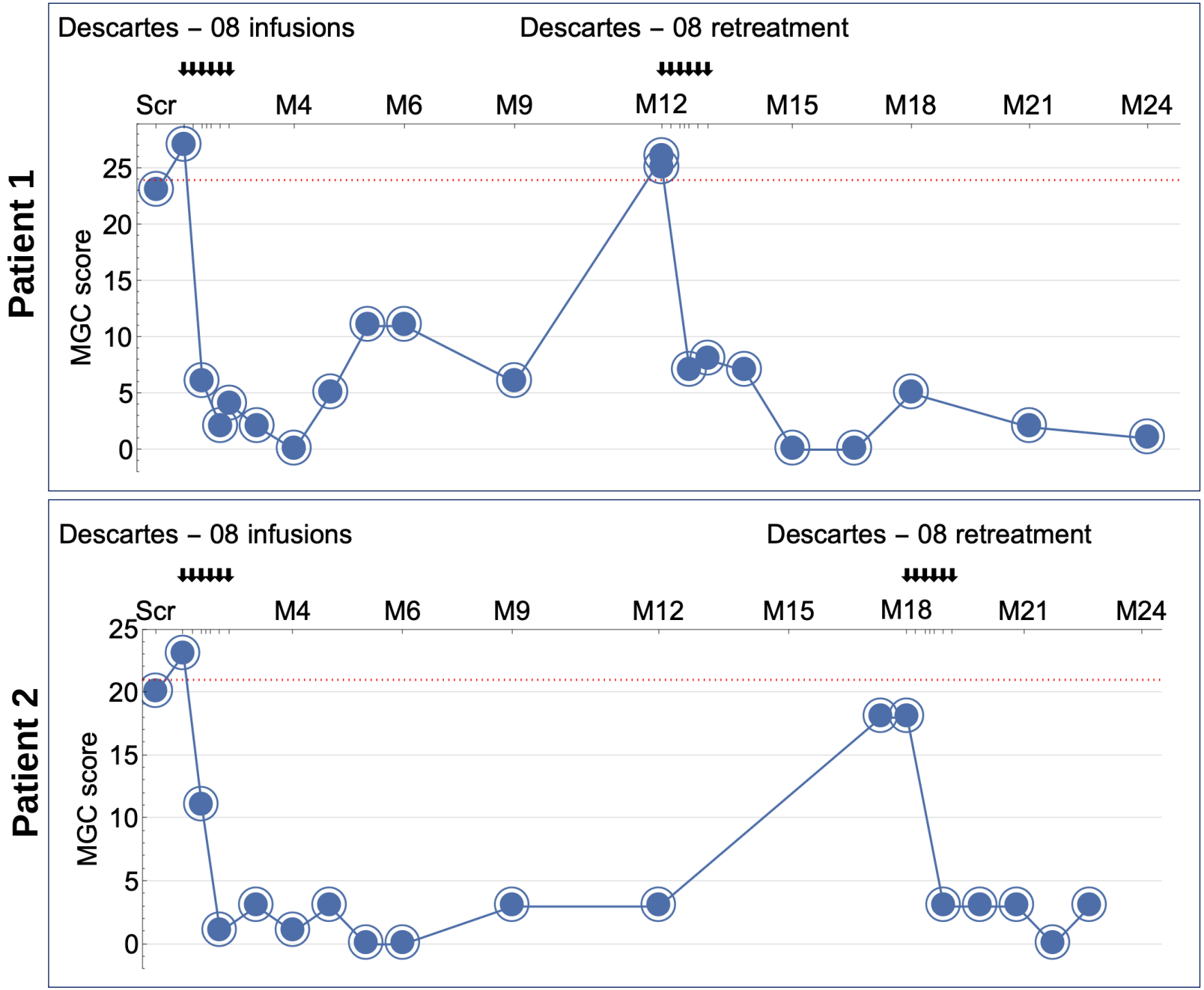
Phase 2a update: Descartes-08 retreatment led to sustained clinically meaningful responses

- Retreated patients experienced rapid improvement in clinical scores and maintained minimal symptom expression for up to one year after receiving second treatment cycle



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

Summary and Next Steps for Descartes-08 in MG

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Deep, durable responses and favorable safety profile observed in patients with MG

Novel design: randomized double-blind placebo-controlled trial of engineered cell therapy in autoimmunity

- Met primary endpoint
  - 71% response rate at Month 3 for Descartes-08 patients vs. 25% for placebo ($p<0.05$)
- Deep, durable responses observed in patients treated with Descartes-08
- Safety profile continues to support outpatient administration
- Data support advancement to Phase 3

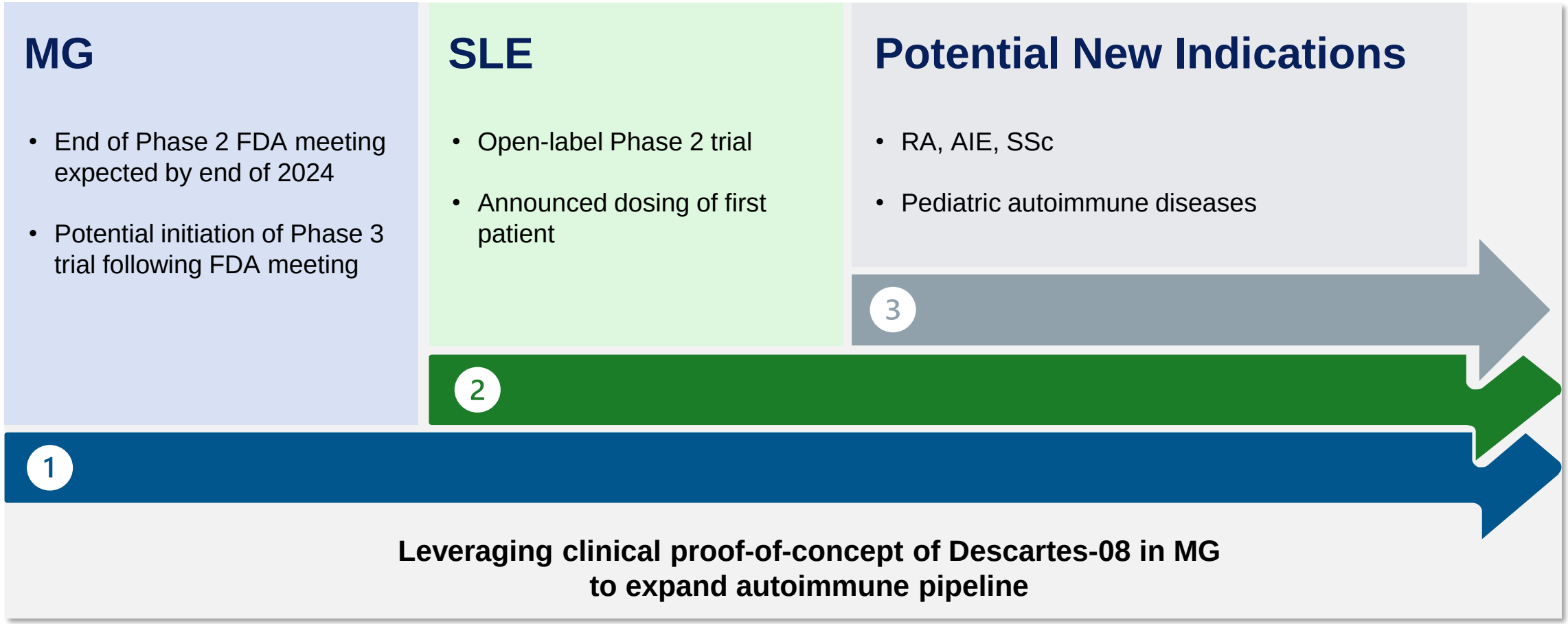
Planned next steps for Descartes-08 in MG

End of Phase 2 meeting with FDA expected **by year-end**

Initiate Phase 3 clinical trial

RMAT designation to support efficient development plan in collaboration with FDA

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



SLE, systemic lupus erythematosus
RA, rheumatoid arthritis

AIE, autoimmune encephalitis
SSc, systemic sclerosis

Appendix

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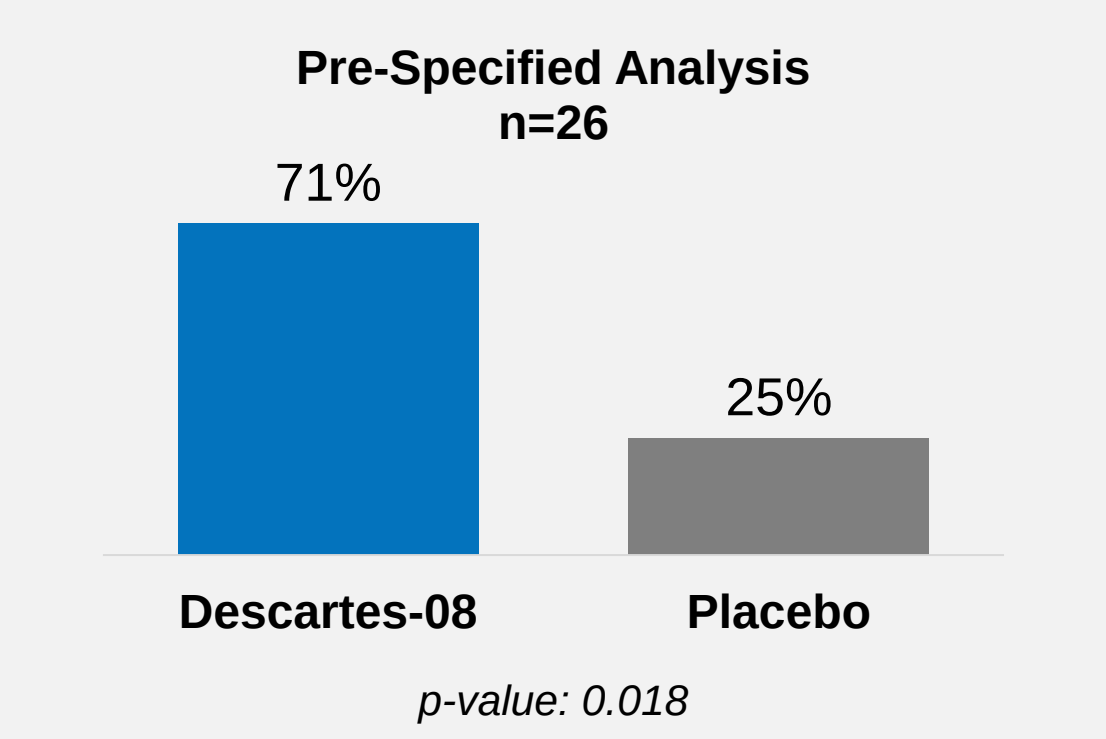
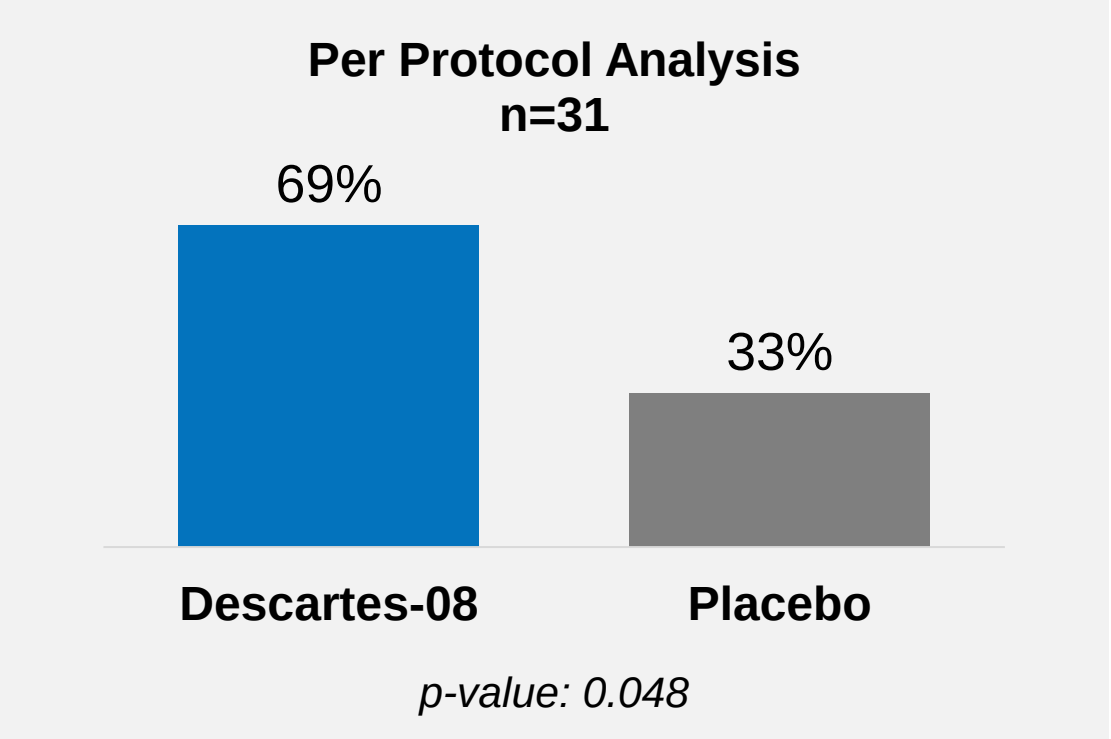
Trial met primary endpoint with statistical significance

- **Responders in pre-specified analysis observed to have ~3x greater improvements than clinically meaningful***
- **Data support advancement to Phase 3**

Proportion of MG Composite Responders (≥5-point reduction) at Month 3





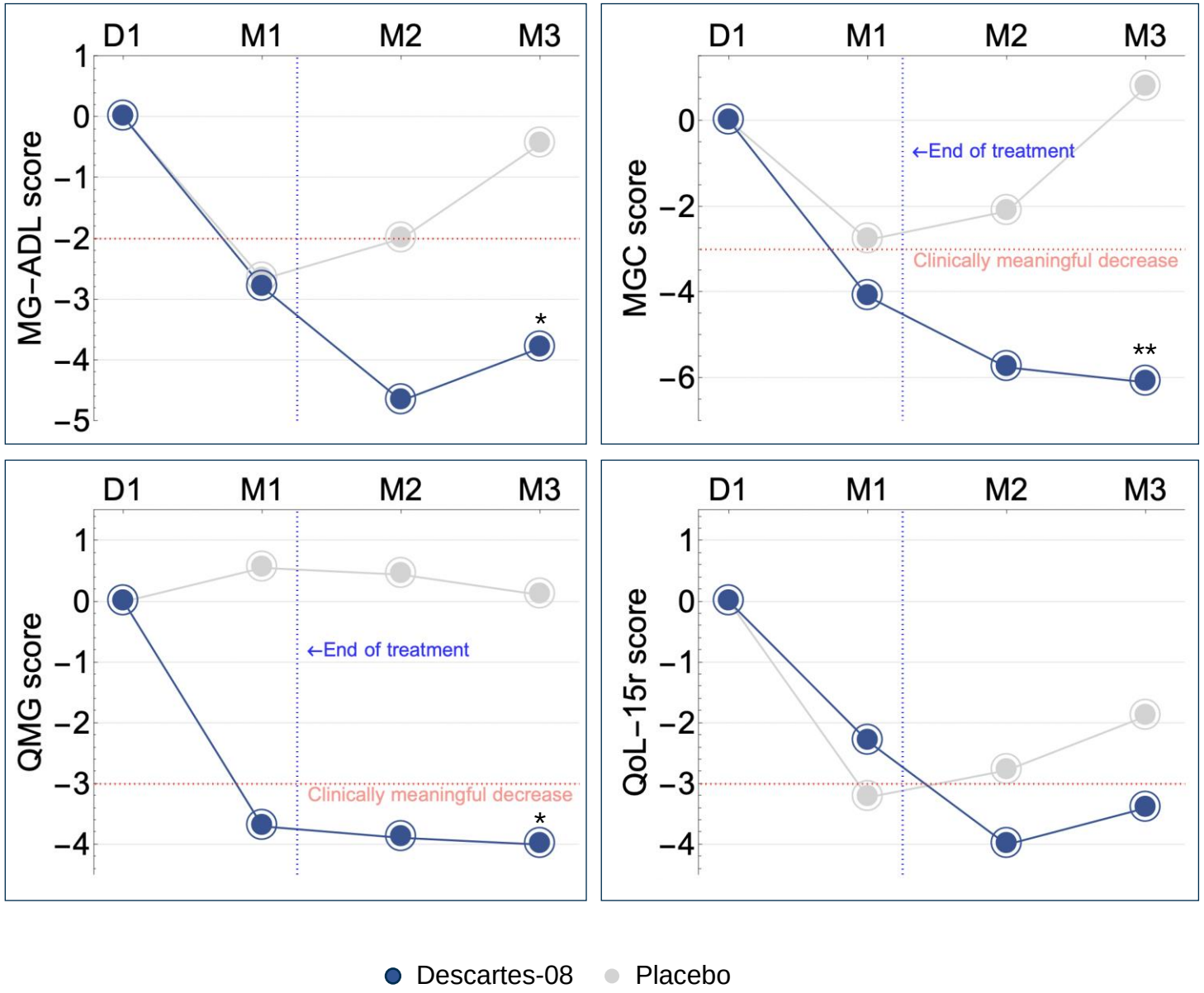
Pre-Specified Responders: Descartes-08, n= 10/14; placebo, n=3/12
Odds ratio 7.5 (95% CI, 1.3, 43)
*Clinically meaningful response is a three-point reduction from baseline

Per Protocol Responders: Descartes-08, n= 11/16; placebo, n=5/15

Descartes-08 demonstrated improvement across important measures of disease activity in AChR Ab+ MG subjects

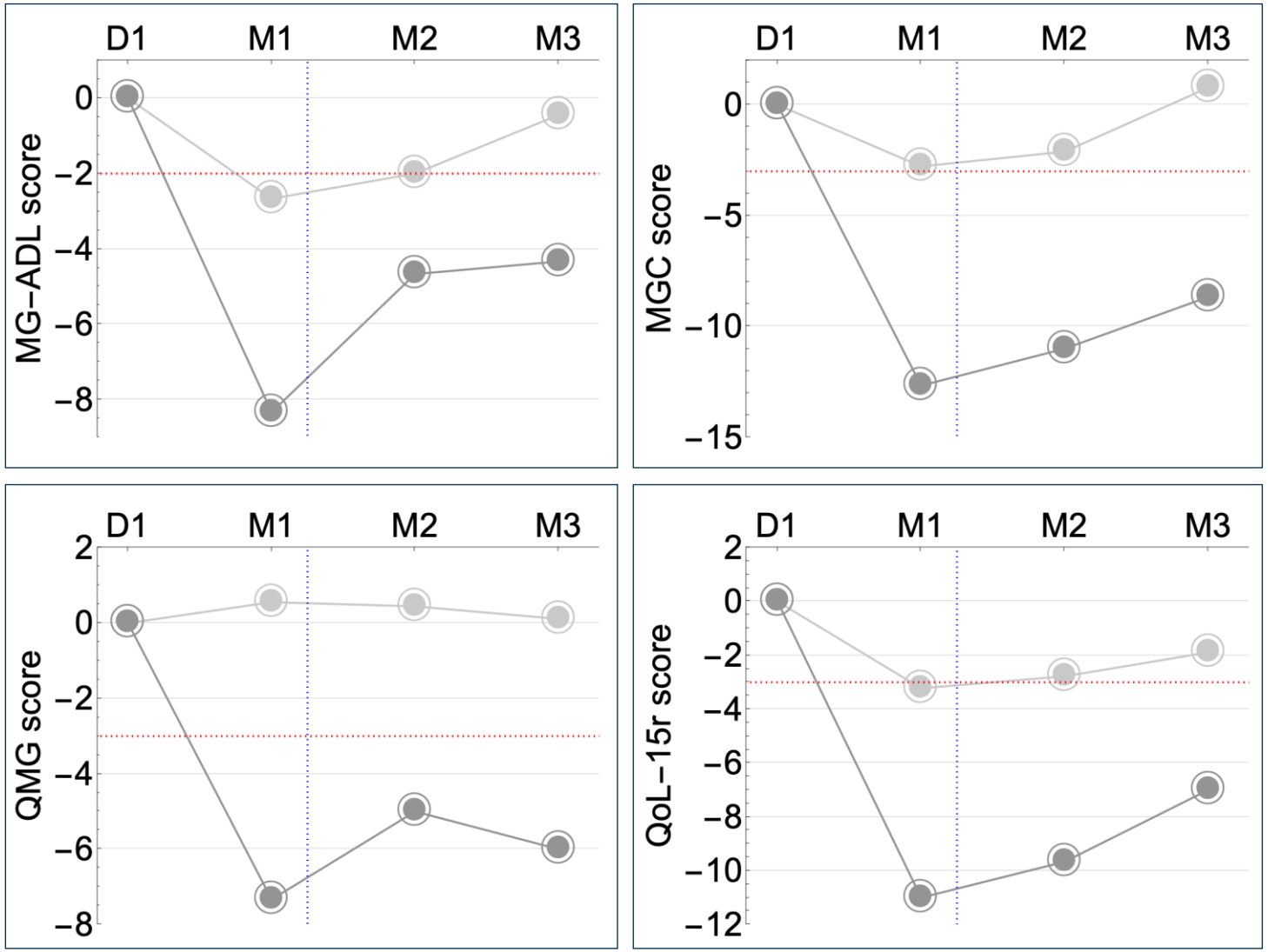
Statistically significant improvement in Descartes-08 compared to placebo at Month 3 seen across MGC (p=0.002), MG-ADL (p=0.012) and QMG (p=0.029).

Placebo responses in AChR Ab+ subjects were consistent with Phase 2/3 published literature.



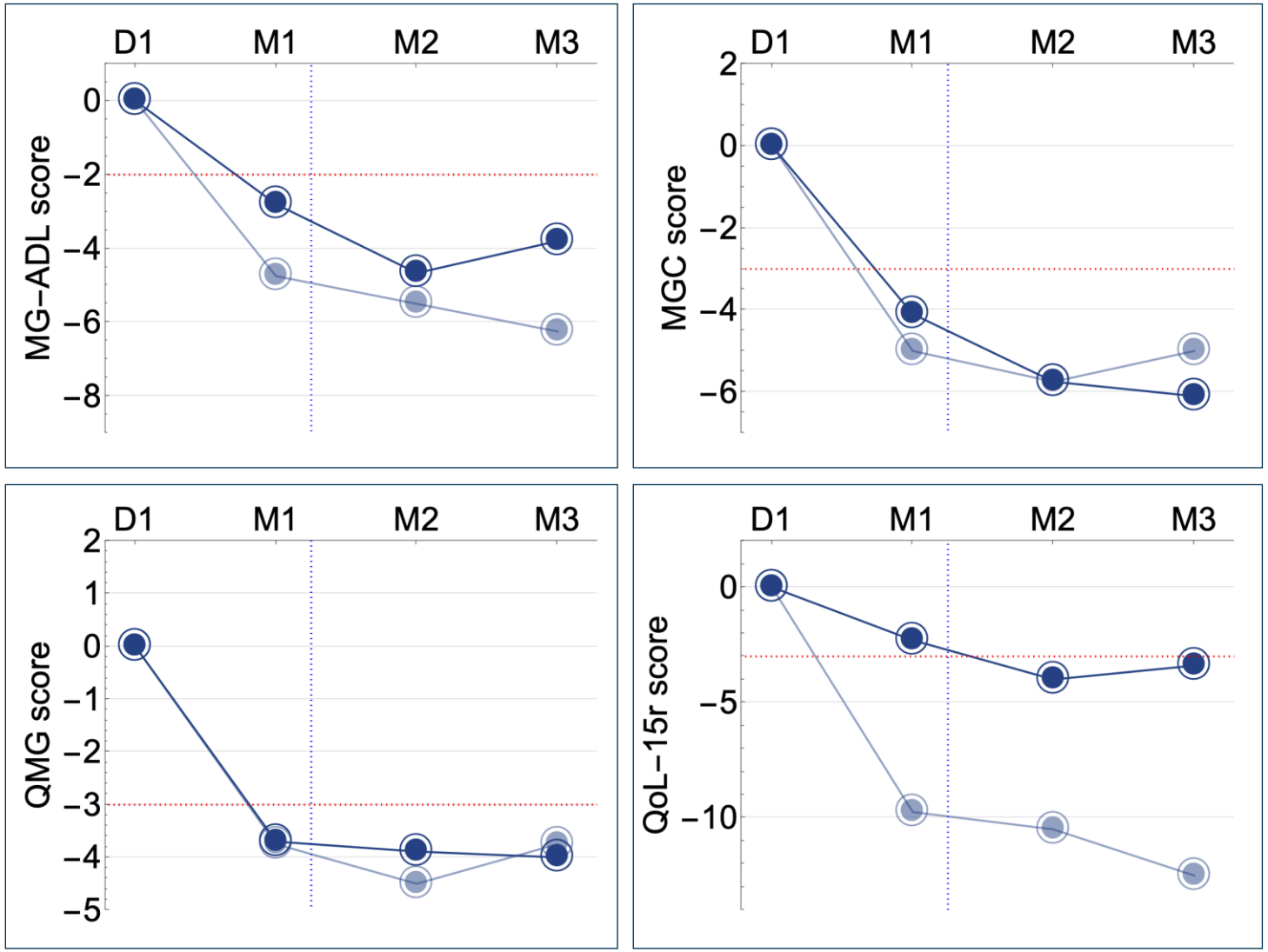
Improvements from baseline in participants with AChR Ab+ MG receiving Descartes-08 (n=10) versus placebo (n=9).
* p<0.05, ** p<0.01 by Mann Whitney U test

Score reductions in measures of disease activity in placebo group was driven by responses in three seronegative subjects



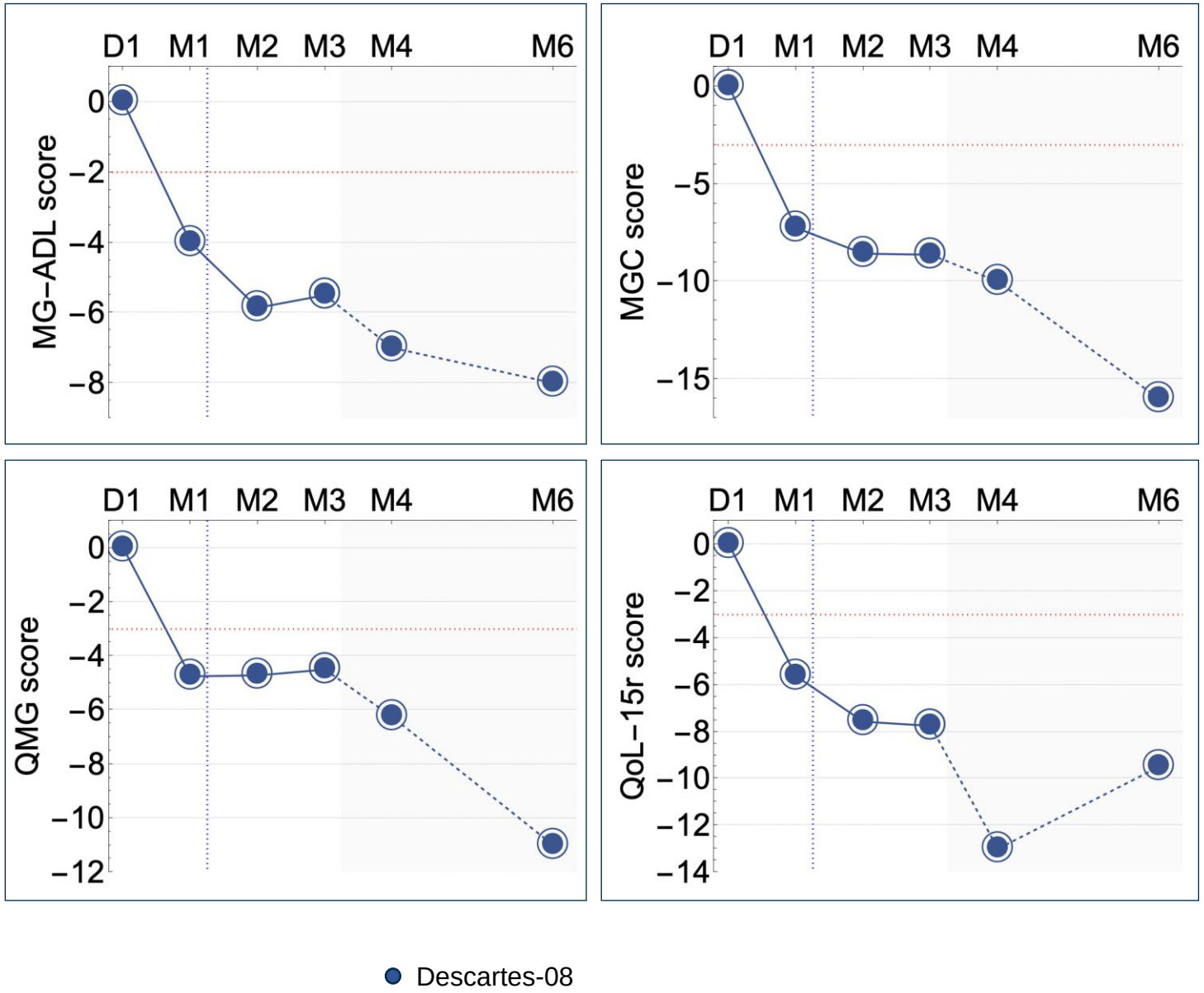
Mean change from baseline in AChR Ab+ (n=9) and seronegative (n=3) participants randomized to placebo

Score reductions in measures of disease activity were similar in all antibody subgroups of patients receiving Descartes-08



Mean change from baseline in AChR or LRP4 Ab+ (n=10) and seronegative (n=4) participants randomized to placebo

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



Mean change from baseline in in patients with no prior biologics
(Months 1–3 n=8, Month 4 n=4, Month 6 n=2)

Plans for continued advancement of Descartes-08 in MG and expansion into additional autoimmune indications

- **Leverage strong clinical results** from Descartes-08 in MG to initiate additional Phase 2 trials with a particular focus on Rheumatology and Neurology
- **Potential new indications** targeting both larger underserved populations as well as niche, rare populations for pediatric and adult patients

NEUROLOGY

ADULT

ADULT & PEDIATRIC

Myasthenia Gravis

Autoimmune Encephalitis

PEDIATRIC

RHEUMATOLOGY

ADULT

Systemic Sclerosis

ADULT & PEDIATRIC

Systemic Lupus Erythematosus

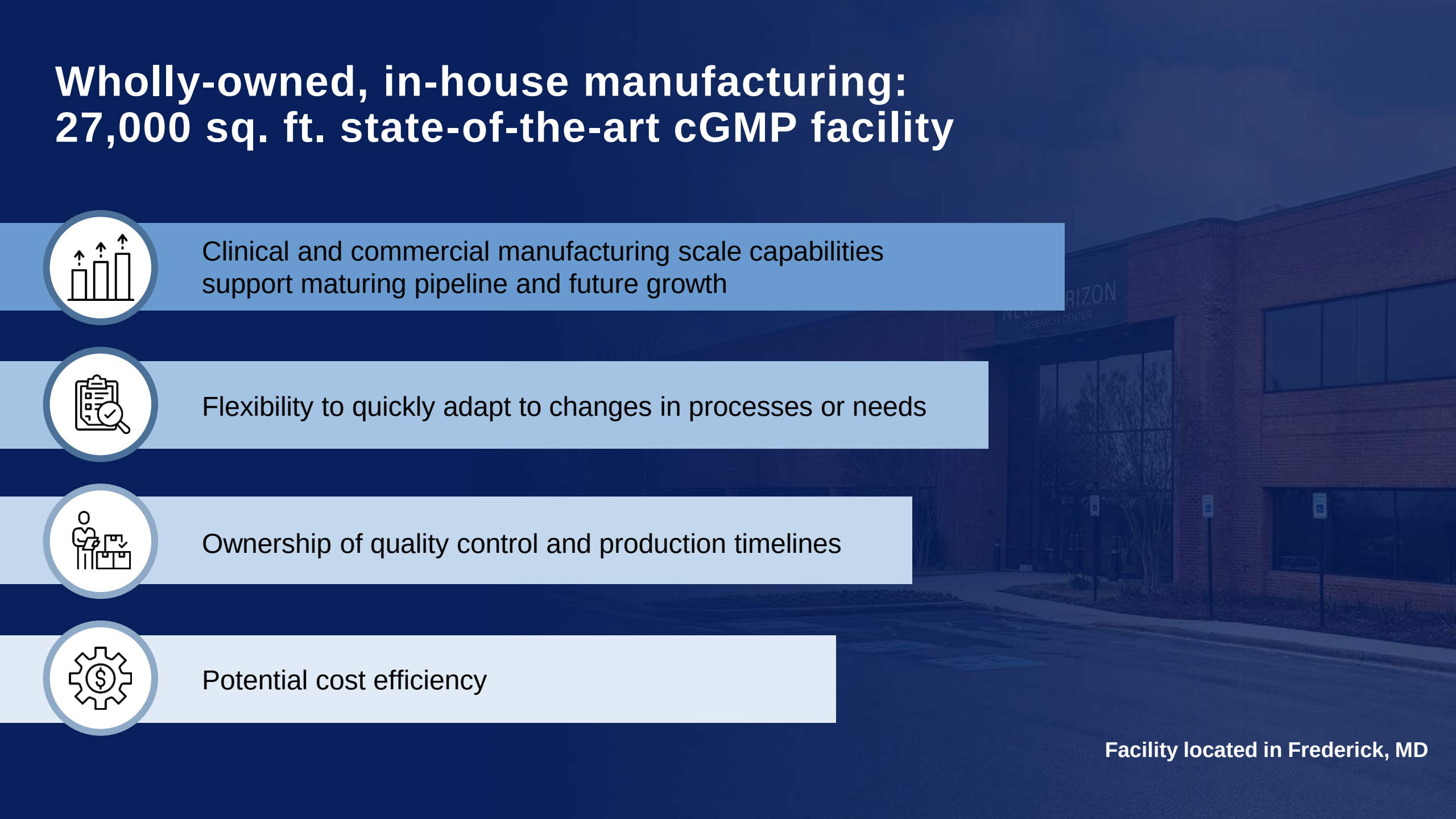
Rheumatoid Arthritis

PEDIATRIC

Juvenile Dermatomyositis

Wholly-owned, in-house manufacturing: 27,000 sq. ft. state-of-the-art cGMP facility

- Clinical and commercial manufacturing scale capabilities support maturing pipeline and future growth
- Flexibility to quickly adapt to changes in processes or needs
- Ownership of quality control and production timelines
- Potential cost efficiency



Facility located in Frederick, MD

Plans to scale operations to support long-term growth of organization

Manufacturing

Investment in manufacturing capacity to support additional clinical programs and future commercial launch of MG indication, if approved

Organizational Structure

Expand organizational structure to support expansion of clinical programs in SLE, AIE, SSc, RA, JDM

Commercial Readiness

Pre-commercial activity to support market preparation and potential launch of MG indication

Process Development

Process development to advance product innovation and yields

JDM, juvenile dermatomyositis