UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of
the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): May 8, 2024

CARTESIAN THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**001-37798**	**26-1622110**
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification No.)

704 Quince Orchard Road, Gaithersburg, MD 20878
(Address of principal executive offices)(Zip Code)

(617) 923-1400
Registrant's telephone number, including area code

N/A
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock (Par Value $0.0001)	RNAC	The Nasdaq Stock Market LLC

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 2.02 Results of Operations and Financial Condition.

On May 8, 2024, Cartesian Therapeutics, Inc. (the "Company") announced its financial results for the quarter ended March 31, 2024. The full text of the press release issued in connection with the announcement is furnished as Exhibit 99.1 to this Current Report on Form 8-K.

Item 7.01. Regulation FD Disclosure.

The Company from time to time presents and/or distributes to the investment community at various industry and other conferences slide presentations to provide updates and summaries of its business. A copy of its current corporate slide presentation is attached to this Current Report on Form 8-K as Exhibit 99.2.

The information in Items 2.02 and 7.01 of this Form 8-K, including Exhibits 99.1 and 99.2 attached hereto, shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as expressly set forth by specific reference in such a filing. The Company undertakes no obligation to update, supplement or amend the materials attached hereto as Exhibit 99.2, except as required by law.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Exhibit Description
99.1	Press Release of Cartesian Therapeutics, Inc. dated May 8, 2024
99.2	Corporate slide presentation of Cartesian Therapeutics, Inc. dated May 2024
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

CARTESIAN THERAPEUTICS, INC.

Date: May 8, 2024

By: /s/ Carsten Brunn, Ph.D.
Carsten Brunn, Ph.D.
President and Chief Executive Officer

Exhibit 99.1

Cartesian Therapeutics Reports First Quarter 2024 Financial Results and Provides Business Update

Topline data from Phase 2b trial of Descartes-08, the Company's potential first-in-class mRNA CAR-T cell therapy, in myasthenia gravis on track for mid-2024

On track to dose first patient in Phase 2 trial of Descartes-08 in SLE in 2Q24, as well as Phase 2 basket studies in additional autoimmune indications in 2H24

New headquarters expected to support scale of wholly owned, in-house cGMP manufacturing capabilities for clinical and commercial supply of Company's pipeline of mRNA cell therapy product candidates

Approximately $104.8M of cash, cash equivalents, and restricted cash as of March 31, 2024, expected to support planned operations into 2H 2026

GAITHERSBURG, MD, May 8, 2024 (GLOBE NEWSWIRE) – Cartesian Therapeutics, Inc. (NASDAQ: RNAC) (the "Company"), a clinical-stage biotechnology company pioneering mRNA cell therapy for autoimmune diseases, today reported financial results for the first quarter ended March 31, 2024, and recent corporate updates.

"We continue to make meaningful progress advancing our innovative pipeline of product candidates and remain on track to report topline results from the Phase 2b trial of our lead product candidate, Descartes-08 for MG, in mid-2024," said Carsten Brunn, Ph.D., President and Chief Executive Officer of Cartesian. "Looking ahead, we also expect to commence dosing in our Phase 2 trial of Descartes-08 in patients with SLE by the end of the second quarter. Descartes-08 is designed with our novel mRNA-engineered CAR-T technology, is not expected to require preconditioning chemotherapy, and is intended to be administered in an outpatient setting. We remain confident Descartes-08 has the potential to expand the reach of cell therapy to patients with autoimmune diseases and serve as the first CAR-T cell therapy for the treatment of autoimmunity."

Dr. Brunn continued, "Additionally, we were excited to announce plans to transition to new corporate headquarters in Frederick, Maryland, that will provide us with the infrastructure to support our next phase of growth. We expect this new facility will allow us to scale our wholly owned, in-house cGMP manufacturing capabilities for late-stage clinical and commercial supply of our mRNA cell therapy product candidates, while continuing to maintain control over product quality and production."

Recent Pipeline Progress and Anticipated Milestones

Descartes-08 for Myasthenia Gravis (MG)

- Topline data from randomized Phase 2b trial in patients with MG on track for mid-2024.
- Recently granted Orphan Drug Designation by the U.S. Food and Drug Administration (FDA) for the treatment of MG.
- Previously disclosed positive, long-term follow-up results from Phase 2a trial. In April 2024, the Company announced that these data will be featured in an oral presentation at the American Society of Gene and Cell Therapy (ASGCT) 27th Annual Meeting on May 10, 2024 in Baltimore, Maryland.
- Descartes-08, the Company's lead product candidate, is an autologous anti-B cell maturation antigen (BCMA) mRNA-engineered chimeric antigen receptor T-cell therapy (mRNA CAR-T).

Descartes-08 for Systemic Lupus Erythematosus (SLE)

- Dosing of first patient in Phase 2 trial of Descartes-08 in patients with SLE expected in second quarter of 2024.
- The Phase 2 trial is designed to assess the safety and tolerability of outpatient Descartes-08 administration without preconditioning chemotherapy.
- SLE is an incurable autoimmune disease marked by systemic inflammation that affects multiple organ systems and impacts approximately 1.5 million people in the United States.

Descartes-15 for Multiple Myeloma

- Planning for the first-in-human Phase 1 dose escalation trial is underway to assess the safety and tolerability of outpatient Descartes-15 administration in patients with multiple myeloma.
- Descartes-15 is a next-generation autologous anti-BCMA mRNA CAR-T product candidate designed to have predictable and controllable pharmacokinetics, potentially circumventing preconditioning chemotherapy, and avoiding the risk of genomic integration.
- The Company expects to subsequently assess Descartes-15 in autoimmune indications.

Corporate Updates

Preferred Stock Conversion and Reverse Stock Split Approved at Special Meeting of Stockholders

- In March 2024, Cartesian announced the approval for the conversion of the Company's Series A Non-Voting Convertible Preferred Stock into the Company's common stock and a 1-for-30 reverse stock split of the Company's common stock.
- Following the reverse stock split and the automatic conversion of the Company's Series A Non-Voting Convertible Preferred Stock into common stock, the number of issued and outstanding shares of the Company's common stock is approximately 17.8 million shares.

Transitioning Corporate Headquarters to Frederick, Maryland

- In March 2024, the Company announced plans to transition its corporate headquarters to Frederick, Maryland. Following this announcement, Cartesian further expanded the footprint of this facility by approximately 30% through an amended agreement.
- The Company now has approximately 27,000 square feet of state-of-the-art current good manufacturing practice (cGMP) compliant manufacturing and laboratory space, as well as general and administrative office space to support the Company's continued growth. This facility reinforces the development of Cartesian's clinical and preclinical programs through clinical and commercial manufacturing scale capabilities and advanced research and development laboratory space.
- By conducting all manufacturing in-house, Cartesian expects to optimize processes more rapidly and iteratively while directly working to ensure adherence to strict quality standards. The Company believes this facility will facilitate production of potent yet safer, cost-effective mRNA cell therapy product candidates for late-stage clinical and commercial supply.

First Quarter 2024 Financial Results

- Cash, cash equivalents, and restricted cash of approximately $104.8 million as of March 31, 2024. The Company's cash, cash equivalents and restricted cash as of March 31, 2024 is expected to support planned operations and the development of Cartesian's pipeline into the second half of 2026, including the planned Phase 3 trial of Descartes-08 in MG.

- Research and development expenses were $9.7 million for the quarter ended March 31, 2024, compared to $18.6 million for the quarter ended March 31, 2023. The decrease in research and development expenses of $8.9 million for the quarter ended March 31, 2024 was primarily the result of reductions in expenses incurred for preclinical and clinical programs due to the strategic reprioritization in the Company's clinical pipeline.

- General and administrative expenses were $9.5 million for the quarter ended March 31, 2024, compared to $5.7 million for the quarter ended March 31, 2023. The increase in expense of $3.8 million for the quarter ended March 31, 2024 was primarily due to an increase in professional fees incurred in connection with the Company's merger in November 2023.

- Net loss was $(56.8) million, or $(10.50) per share (basic/diluted), for the quarter ended March 31, 2024, compared to net loss of $(21.7) million, or $(4.24) per share (basic/diluted), for the quarter ended March 31, 2023.

About Cartesian Therapeutics

Cartesian Therapeutics is a clinical-stage company pioneering mRNA cell therapies for the treatment of autoimmune diseases. The Company's lead asset, Descartes-08, is a potential first-in-class mRNA CAR-T in Phase 2b clinical development for patients with generalized myasthenia gravis. Additional Phase 2 studies are planned in systemic lupus erythematosus under an allowed IND, as well as basket trials in additional autoimmune indications. The Company's clinical-stage pipeline also includes Descartes-15, a next-generation, autologous anti-BCMA mRNA CAR-T. For more information, please visit www.cartesiantherapeutics.com or follow the Company on LinkedIn or X, formerly known as Twitter.

Forward Looking Statements

Any statements in this press release about the future expectations, plans and prospects of the Company, including without limitation, statements regarding the Company's expected cash resources and cash runway, the Company's estimated cash on hand, the Company's headquarters relocation, the Company's manufacturing capabilities and ability to supply necessary quantities of its product candidates for clinical trials and potential commercialization, the Company's ability to maintain control over its product quality and production, the potential of the Company's technology to enable precision control and optimization of engineered cells for diverse cell therapies leveraging multiple modalities, the potential of Descartes-08 and Descartes-15 and the Company's other product candidates to treat myasthenia gravis, systemic lupus erythematosus, or any other disease, the anticipated initiation timing of planned clinical trials, the anticipated timing or the outcome of ongoing and planned clinical trials, studies and data readouts, the anticipated timing or the outcome of the FDA's review of the Company's regulatory filings, the Company's ability to conduct its clinical trials and preclinical studies, the timing or making of any regulatory filings, the anticipated timing or outcome of selection of developmental product candidates, the ability of the Company to consummate any expected agreements and licenses and to realize the anticipated benefits thereof, the novelty of treatment paradigms that the Company is able to develop, the potential of any therapies developed by the Company to fulfill unmet medical needs, the Company's ability to enter into and maintain its strategic partnerships, and enrollment in the Company's clinical trials and other statements containing the words "anticipate," "believe," "continue," "could," "estimate," "expect," "hypothesize," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "would," and similar expressions, constitute forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including, but not limited to, the following: the uncertainties inherent in the initiation, completion and cost of clinical trials including proof of concept trials, including uncertain outcomes, the availability and timing of data from ongoing and future clinical trials and the results of such trials, whether preliminary results from a particular clinical trial will be predictive of the final results of that trial and whether results of early clinical trials will be indicative of the results of later clinical trials, the ability to predict results of studies performed on human beings based on results of studies performed on non-human subjects, the unproven approach of the Company's technology, potential delays in enrollment of patients, undesirable side effects of the Company's product candidates, its reliance on third parties to conduct its clinical trials, the Company's inability to maintain its existing or future collaborations, licenses or contractual relationships, its inability to protect its proprietary technology and intellectual property, potential delays in regulatory approvals, the availability of funding sufficient for its foreseeable and unforeseeable operating expenses and capital expenditure requirements, the Company's recurring losses from operations and negative cash flows, substantial fluctuation in the price of the Company's common stock, risks related to geopolitical conflicts and pandemics and other important factors discussed in the "Risk Factors" section of the Company's most recent Annual Report on Form 10-K and subsequently filed Quarterly Reports on Form 10-Q, and in other filings that the Company makes with the Securities and Exchange Commission. In addition, any forward-looking statements included in this press release represent the Company's views only as of the date of its publication and should not be relied upon as representing its views as of any subsequent date. The Company specifically disclaims any intention to update any forward-looking statements included in this press release, except as required by law.

Cartesian Therapeutics, Inc. and Subsidiaries
Consolidated Balance Sheets
(Amounts in thousands, except share data and par value)

	March 31, 2024	December 31, 2023
	(Unaudited)	
Assets		
Current assets:		
Cash and cash equivalents	$ 103,418	$ 76,911
Accounts receivable	2,006	5,870
Unbilled receivables	2,370	2,981
Prepaid expenses and other current assets	3,315	4,967
Total current assets	111,109	90,729
Non-current assets:		
Property and equipment, net	2,402	2,113
Right-of-use asset, net	9,556	10,068
In-process research and development assets	150,600	150,600
Goodwill	48,163	48,163
Long-term restricted cash	1,377	1,377
Investments	2,000	2,000
Total assets	$ 325,207	$ 305,050
Liabilities, convertible preferred stock, and stockholders' deficit		
Current liabilities:		
Accounts payable	$ 2,517	$ 3,150
Accrued expenses and other current liabilities	9,516	15,572
Lease liability	2,229	2,166
Deferred revenue	412	2,311
Warrant liabilities	597	720
Contingent value right liability	21,383	15,983
Forward contract liabilities	—	28,307
Total current liabilities	36,654	68,209
Non-current liabilities:		
Lease liability, net of current portion	8,228	8,789
Deferred revenue, net of current portion	—	3,538
Warrant liabilities, net of current portion	4,755	5,674
Contingent value right liability, net of current portion	376,517	342,617
Deferred tax liabilities, net	15,853	15,853
Total liabilities	442,007	444,680
Series A Preferred Stock, $0.0001 par value; no and 548,375 shares authorized as of March 31, 2024 and December 31, 2023, respectively; no and 435,120.513 shares issued and outstanding as of March 31, 2024 and December 31, 2023, respectively	—	296,851
Options for Series A Preferred Stock	—	3,703
Stockholders' deficit:		
Series A Preferred Stock, $0.0001 par value; 548,375 and no shares authorized as of March 31, 2024 and December 31, 2023, respectively; 534,260.839 and no shares issued and outstanding as of March 31, 2024 and December 31, 2023, respectively	—	—
Preferred stock, $0.0001 par value; 10,000,000 and 9,451,625 shares authorized as of March 31, 2024 and December 31, 2023, respectively; no shares issued and outstanding as of March 31, 2024 and December 31, 2023	—	—
Common stock, $0.0001 par value; 350,000,000 shares authorized as of March 31, 2024 and December 31, 2023; 5,515,836 and 5,397,597 shares issued and outstanding as of March 31, 2024 and December 31, 2023, respectively	1	1
Additional paid-in capital	559,275	179,062
Accumulated deficit	(671,471)	(614,647)
Accumulated other comprehensive loss	(4,605)	(4,600)
Total stockholders' deficit	(116,800)	(440,184)
Total liabilities, convertible preferred stock, and stockholders' deficit	$ 325,207	$ 305,050

Cartesian Therapeutics, Inc. and Subsidiaries

Consolidated Statements of Operations and Comprehensive Income (Loss)

(Amounts in thousands, except share and per share data)

	Three Months Ended March 31,	
	2024	2023
	(Unaudited)	
Collaboration and license revenue	$ 5,840	$ 5,938
Operating expenses:		
Research and development	9,738	18,624
General and administrative	9,450	5,695
Total operating expenses	19,188	24,319
Operating loss	(13,348)	(18,381)
Investment income	1,164	1,331
Foreign currency transaction, net	—	19
Interest expense	—	(808)
Change in fair value of warrant liabilities	1,042	(4,079)
Change in fair value of contingent value right liability	(39,300)	—
Change in fair value of forward contract liabilities	(6,890)	—
Other income, net	508	255
Net loss	$ (56,824)	$ (21,663)
Other comprehensive (loss) income:		
Foreign currency translation adjustment	(5)	(22)
Unrealized gain (loss) on marketable securities	—	11
Total comprehensive loss	$ (56,829)	$ (21,674)
Net loss per share:		
Basic and Diluted	$ (10.50)	$ (4.24)
Weighted-average common shares outstanding:		
Basic and Diluted	5,414,020	5,111,518

Investor Contact
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Media Contact
David Rosen
Argot Partners
cartesian@argotpartners.com

Exhibit 99.2

Cartesian THERAPEUTICS

CARTESIAN THERAPEUTICS

Pioneering mRNA Cell Therapy for Autoimmunity

May 2024

Forward-Looking Statements

Disclosures

For the purposes of this notice, the "presentation" that follows shall mean and include the slides that follow, the oral presentation of the slides by members of management of Cartesian Therapeutics, Inc. (the "Company") or any person on their behalf, any question-and-answer session that follows such oral presentation, hard copies of this document and any materials distributed at, or in connection with, such oral presentation.

Forward-looking Statements

Any statements in this presentation about the future expectations, plans and prospects of the Company, including without limitation, statements regarding the Company's expected cash resources and cash runway, the Company's estimated cash on hand, conversion of the Company's remaining Series A Non-Voting Convertible Preferred Stock, the Company's in-house manufacturing capabilities, the potential of RNA Armory® to enable precision control and optimization of engineered cells for diverse cell therapies leveraging multiple modalities, the potential of Descartes-08, Descartes-15, Descartes-33 and the Company's other product candidates to treat myasthenia gravis, systemic lupus erythematosus, or any other disease, the anticipated timing or the outcome of ongoing and planned clinical trials, studies and data readouts, the anticipated timing or the outcome of the FDA's review of the Company's regulatory filings, the Company's ability to conduct its clinical trials and preclinical studies, the timing or making of any regulatory filings, the anticipated timing or outcome of selection of developmental product candidates, the ability of the Company to consummate any expected agreements and licenses and to realize the anticipated benefits thereof, the novelty of treatment paradigms that the Company is able to develop, the potential of any therapies developed by the Company to fulfill unmet medical needs, the Company's ability to enter into and maintain its strategic partnerships, and enrollment in the Company's clinical trials and other statements containing the words "anticipate," "believe," "continue," "could," "estimate," "expect," "hypothesize," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "would," and similar expressions, constitute forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including, but not limited to, the following: the uncertainties inherent in the initiation, completion and cost of clinical trials including proof of concept trials, including uncertain outcomes, the availability and timing of data from ongoing and future clinical trials and the results of such trials, whether preliminary results from a particular clinical trial will be predictive of the final results of that trial and whether results of early clinical trials will be indicative of the results of later clinical trials, the ability to predict results of studies performed on human beings based on results of studies performed on non-human subjects, the unproven approach of the Company's RNA Armory® technology, potential delays in enrollment of patients, undesirable side effects of the Company's product candidates, its reliance on third parties to conduct its clinical trials, the Company's inability to maintain its existing or future collaborations, licenses or contractual relationships, its inability to protect its proprietary technology and intellectual property, potential delays in regulatory approvals, the availability of funding sufficient for its foreseeable and unforeseeable operating expenses and capital expenditure requirements, the Company's recurring losses from operations and negative cash flows, substantial fluctuation in the price of the Company's common stock, risks related to geopolitical conflicts and pandemics and other important factors discussed in the "Risk Factors" section of the Company's most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q, and in other filings that the Company makes with the Securities and Exchange Commission. In addition, any forward-looking statements included in this presentation represent the Company's views only as of the date of its publication and should not be relied upon as representing its views as of any subsequent date. The Company specifically disclaims any intention to update any forward-looking statements included in this presentation, except as required by law.

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: Potential first-in-class mRNA CAR T-cell (CAR-T) demonstrated **deep and durable clinical responses** in Phase 2a study in patients with myasthenia gravis (MG)
- **Wholly-owned GMP manufacturing** designed to enable rapid optimization of processes in iterative manner

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MULTIPLE ANTICIPATED NEAR-TERM CATALYSTS

DESCARTES-08

- Phase 2b topline data in MG expected mid-2024
- Initiation of Phase 2 study in SLE expected in 1H 2024
- Initiation of studies in additional autoimmune indications expected in 2H 2024

DESCARTES-15

- Next-generation mRNA CAR-T candidate
- IND cleared, with first-in-human Phase 1 planning activities underway

STRONG CASH RESOURCES

$104.8M as of March 31, 2024; expected to fund currently planned operations into 2H26

Expected to provide for continued clinical development of Descartes-08 in MG through Phase 3 and multiple additional clinical programs

CAR, Chimeric antigen receptor
SLE, Systemic Lupus Erythematosus

Experienced management team to lead the mRNA cell therapy company of the future

MANAGEMENT

Carsten Brunn, PhD
President and CEO

Blaine Davis
CFO

Metin Kurtoglu, MD, PhD
CTO

Emily English, PhD
SVP, Head of Manufacturing Operations

Chris Jewell, PhD
CSO

Milos Miljkovic, MD
CMO

Jessica Keliher
CPO

Matthew Bartholomae
General Counsel

BOARD MEMBERS

Carrie S. Cox
Chairman

Timothy Barabe
Director

Nishan De Silva, MD
Director

Murat Kalayoglu, MD, PhD
Director

Michael Singer, MD, PhD
Director

Timothy Springer, PhD
Director

Patrick Zenner
Director

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

Cartesian mRNA Cell Therapy

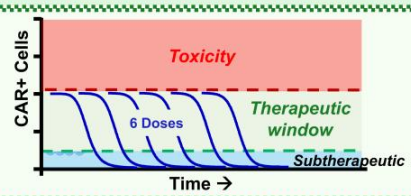
No Lymphodepleting Chemotherapy Required
No requirement for cell proliferation → no expected need for pre-treatment chemotherapy → no Grade 3-4 cytopenias

Administered Outpatient
Reduced patient burden and lower indirect cost

Delivered at Therapeutic Levels
Expectation for cells to be administered at therapeutic, but sub-toxic doses

Controllable PK/PD
mRNA does not replicate → predictable half-life with more controllable PK/PD defined by the dose

Transient Cell Modification
Does not carry risk of genomic integration



Conventional DNA Cell Therapy

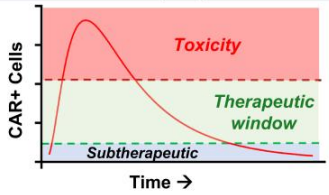
Requires Lymphodepleting Chemotherapy
Associated with high rates of toxicity, including cytokine release syndrome

Requires Inpatient Administration
High patient burden resulting in higher indirect costs

Administered at Subtherapeutic Levels
Cells proliferate rapidly beyond therapeutic window

Uncontrollable PK/PD
Effector function of cell therapy engineered with DNA amplifies exponentially with cell replication

Permanent Cell Modification
Associated with insertional mutagenesis leading to potential secondary malignancies



Wholly-owned pipeline targets autoimmune disease

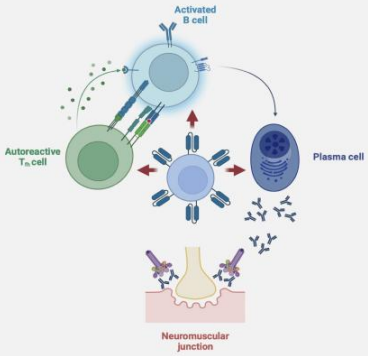
Asset	Indications	Discovery/Preclinical	Phase 1	Phase 2	Pivotal
Descartes-08 Autologous mRNA CAR-T	Myasthenia Gravis				
	SLE, other Autoimmune Diseases				
Descartes-15 Autologous mRNA CAR-T	Autoimmune Diseases*				
Descartes-33 Allogeneic mRNA MSC	Autoimmune Diseases				
***In situ* LN transfection**	Undisclosed				

SLE, Systemic Lupus Erythematosus
mRNA MSC, Mesenchymal Stem Cells transfected with mRNA

* Phase 1 dose escalation study in myeloma underway
LN, Lymph node

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**
- **Positive Phase 2a data** in myasthenia gravis underscores potential for deep and durable responses
- Granted **U.S. FDA orphan designation** for generalized myasthenia gravis



Cartesian

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

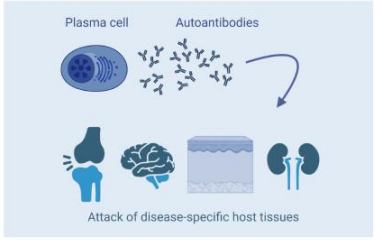
- PCs, plasmablasts and proliferating B cells targeted by Descartes-08 represent a tiny fraction of B cells
- These cells are entirely responsible for secreting pathogenic autoantibodies
- During autoimmunity, autoantibodies attack host tissue and drive inflammation

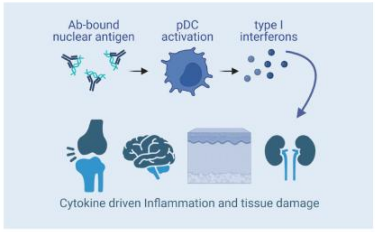
PLASMACYTOID DENDRITIC CELLS (pDCs)

- 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





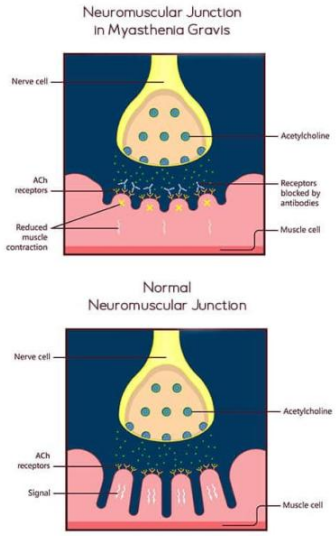
Cartesian THERAPEUTICS

BCMA: B cell maturation antigen; SLE: systemic lupus erythematosus

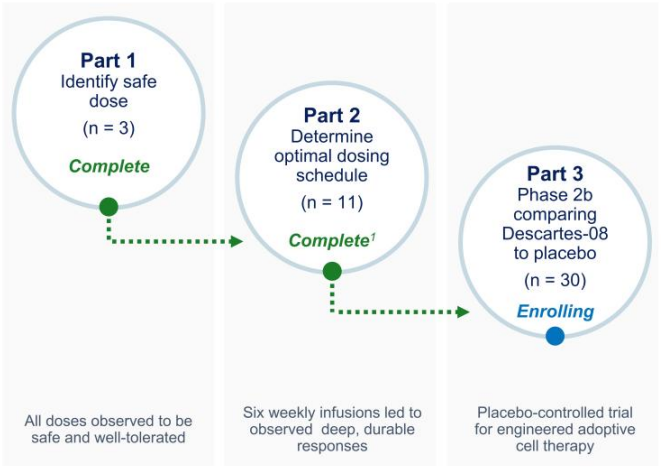
Initial indication for Descartes-08: Myasthenia gravis

- Affects **over 120,000 patients** in US and EU
- Characterized by debilitating weakness: limbs, respiratory, ocular, facial muscles
- **Standard of care** includes **chronic use of immunosuppressants**, which are **often toxic:**
  - Progressive disease that is fatal in 1/3 of patients without immunosuppressants
- Newer agents include **complement inhibitors and anti-FcRn mAbs**, which must be **administered chronically** to maintain responses
- **Pathogenesis is similar across many autoimmune diseases;** involves attack on self by both T cells and B/plasma cells

Cartesian



Phase 2 study of Descartes-08 in MG (NCT04146051)



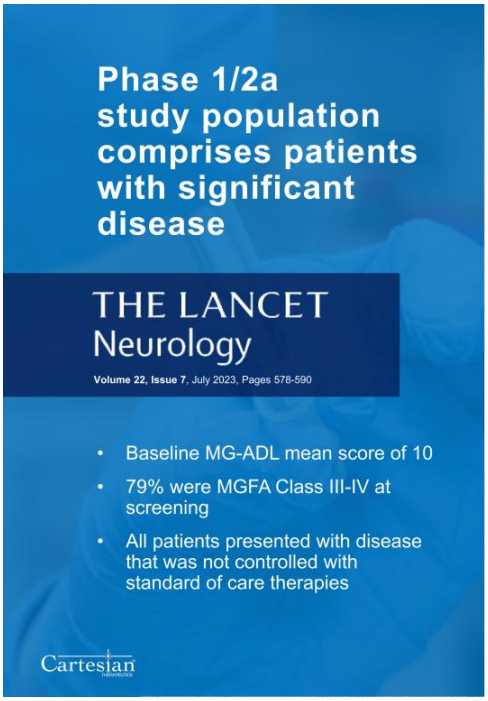
Patient eligibility

- MG-ADL ≥ 6
- MGFA Class II-IV
- Stable medication dosing ≥ 8 wks prior to infusion
- 4-week washout for biologics
- IVIg and plasma exchange not allowed after starting Descartes-08

Patients on immunosuppression or complement inhibitors expected to be able to continue their treatment while receiving Descartes-08

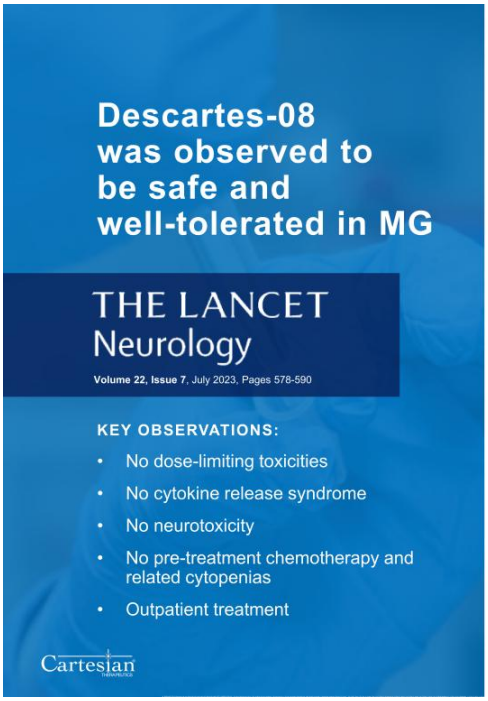
Cell manufacturing platform tolerates most standard immunosuppressive therapies

[1] Continues to enroll patients with MuSK MG and subjects who are otherwise not eligible for Part 3
MG-ADL, Myasthenia Gravis Activities of Daily Living scale
MGFA, Myasthenia Gravis Foundation of America



Mean age, years (SD)	52 (18)
Female	10 (71%)
Male	4 (29%)
Mean weight, kg (SD)	84 (21)
Mean BMI, kg/m² (SD)	31.6 (8.1)
Race and ethnicity	
White, non-Hispanic	11 (79%)
White, Hispanic	1 (7%)
Asian	2 (14%)
MGFA class at screening	
II	3 (21%)
III	10 (71%)
IV	1 (7%)
Median age of disease onset, years (range)	40 (14-79)
Median duration of disease, years (range)	14 (3-27)
Myasthenia gravis antibody status	
Anti-AChR antibody	11 (79%)
Anti-MuSK antibody	2 (14%)
Seronegative (for AChR, MuSK, and LRP4 antibodies)	1 (7%)
Mean baseline scores (SD)	
QMG	15.3 (4.1)
MG-ADL	10.0 (3.2)
MGC	21.9 (5.7)
MG-QoL-15r	19.9 (5.8)

Previous myasthenia gravis therapies (standard of care)	
Pyridostigmine	14 (100%)
Prednisone	14 (100%)
Other immunosuppressants	14 (100%)
Eculizumab	2 (14%)
Rituximab	2 (14%)
Previous intravenous immunoglobin	12 (86%)
Previous plasma exchange	8 (57%)
Diagnosis of thymoma	0
Previous thymectomy	6 (43%)
Previous myasthenia gravis crisis requiring intubation	4 (29%)
Myasthenia gravis ongoing therapy	
Pyridostigmine	11 (79%)
Prednisone	10 (71%)
Azathioprine	1 (7%)
Mycophenolate mofetil	1 (7%)



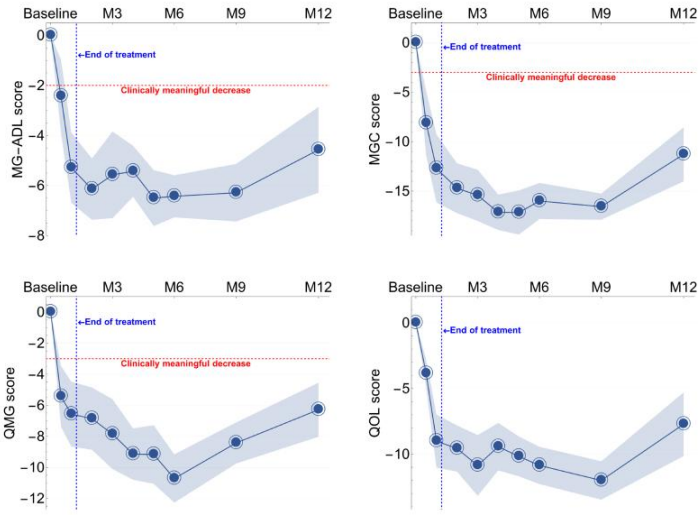
	Grade*	Part 1 (n=3)	Part 2: all groups (n=11)	Part 2: group 1 (n=3)	Part 2: group 2 (n=7)	Part 2: group 3 (n=1)
Hand numbness	2	1 (33%)	0	0	0	0
Headache	1	1 (33%)	5 (45%)	1 (33%)	3 (43%)	1 (100%)
Muscle soreness	1	1 (33%)	1 (9%)	0	1 (14%)	0
Nausea	1	1 (33%)	4 (36%)	2 (67%)	2 (29%)	0
Rash	3	0	1 (9%)	1 (33%)	0	0
Itchy throat	1	0	2 (18%)	0	1 (14%)	1 (100%)
Vomiting	1	0	3 (27%)	2 (67%)	1 (14%)	0
Weakness	1	0	2 (18%)	2 (67%)	0	0
Line infiltration	1	0	1 (9%)	1 (33%)	0	0
Fever	1	0	4 (36%)	1 (33%)	3 (43%)	0
Shortness of breath†	1	0	2 (18%)	1 (33%)	1 (14%)	0
Chills	1	0	2 (18%)	1 (33%)	1 (14%)	0
Diarrhoea	1	0	1 (9%)	1 (33%)	1 (14%)	0
Gum inflammation	1	0	1 (9%)	0	1 (14%)	0
Teeth sensitivity	1	0	1 (9%)	0	1 (14%)	0
Night sweats	1	0	1 (9%)	0	1 (14%)	0
Restless leg	1	0	1 (9%)	0	1 (14%)	0
Light-headedness	1	0	1 (9%)	0	1 (14%)	0

*There were no adverse events of grade 3 or higher reported in part 1, and no grade 2 or grade 4 events reported in part 2, where grade 1 is mild, grade 2 is moderate, grade 3 is severe, and grade 4 is life-threatening.
†Not associated with hypoxia

Descartes-08 observed to induce deep and durable clinical improvement in MG

- **Notable magnitude and duration of response** across all 4 standard MG severity scales
- Responses appear **to *deepen after completing treatment*** at Week 6
- **Positive** twelve-month follow-up data from Phase 2a study reinforce prior findings published in *Lancet Neurology*

Cartesian Therapeutics

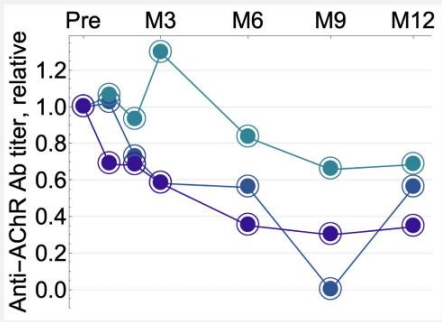


Manuscript submitted for peer review; pre-print available at medRxiv.org
Efficacy dataset includes all MG patients completing the 6-dose once-weekly regimen (n=7). Data are mean score improvement (point) and standard error (light blue shading). Note that QOL scale does not have an agreed-upon threshold for clinically meaningful disease improvement; MG-ADL, MGC and QMG scales are validated, quantitated, standardized instruments of disease severity and have been acceptable endpoints for registration studies.

Descartes-08: Durable depletion of autoantibodies consistent with observed clinical responses and MoA

- All three participants with detectable AChR antibody levels at baseline experienced autoantibody reductions by Month 6
- Reductions deepened further by Month 9, and were maintained at Month 12

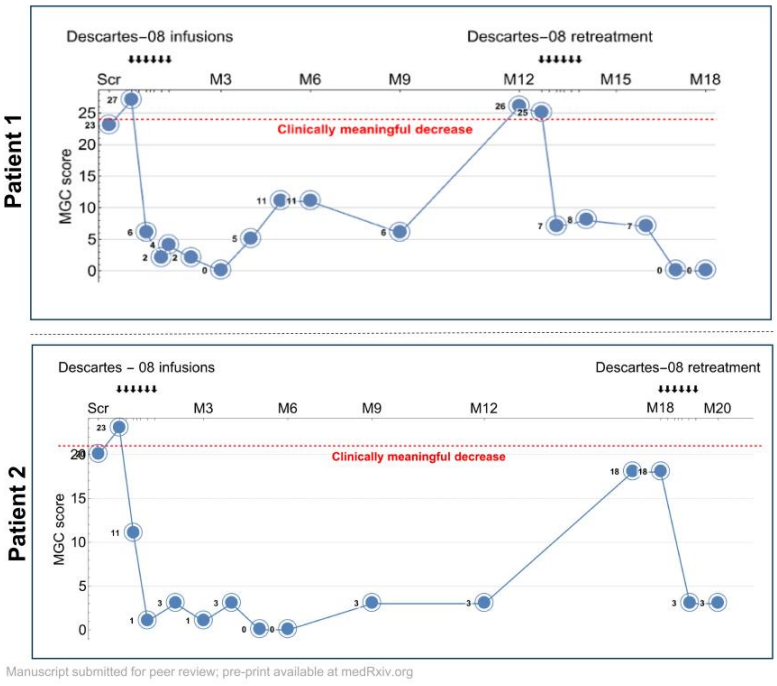
Cartesian Therapeutics



Descartes-08 retreatment led to a rapid decrease in MG-specific clinical scores

- Retreated patients experienced rapid improvement in clinical scores and minimal symptom expression

Cartesian



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

Phase 2b randomized, placebo-controlled, double-masked study of Descartes-08 in MG

Plan to treat ~30 patients

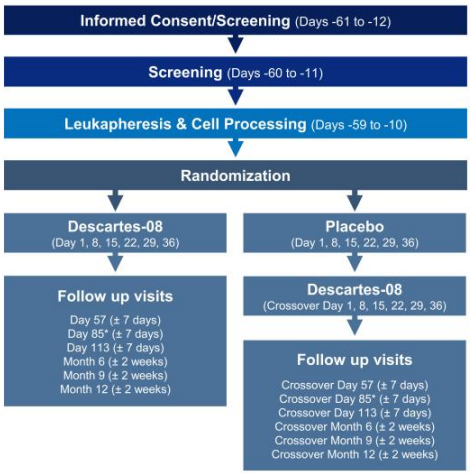
PRIMARY ENDPOINT

- Proportion of **MG Composite** responders (**≥5-point** reduction) at Day 85

SECONDARY OBJECTIVES

- Safety and tolerability
- Quantify clinical effect of Descartes-08 over 1 year
- QMG, MG QoL 15R, MG ADL, and MG PIS (change from baseline to Day 85)
- Compare effect of Descartes-08 versus placebo on MG scales (change from baseline to Day 85) in patients who cross over from placebo to Descartes-08

Enrollment underway, with top-line results expected in mid-2024



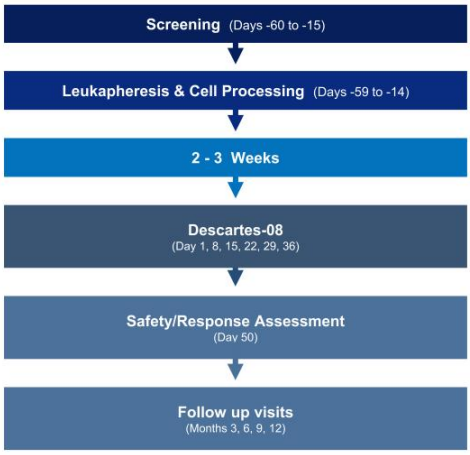
MG QMG, Quantitative MG Scores
MG QOL15R, MG Quality of Life 15-revised
MG ADL, MG Activities of Daily Living
MG PIS, MG Post-intervention Status

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

IND CLEARED

PHASE 2 STUDY ON TRACK FOR 1H 2024

- Open-label study 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)



Exploring additional applications for Descartes-08 in autoantibody-associated autoimmune diseases (AAAD)

- Clinical data suggest that Descartes-08 could lead to clinical benefit along with disappearance of disease-associated autoantibodies, suggesting potential in additional autoimmune indications

Potential significant Descartes-08-associated improvement observed in a patient with autoimmune retinitis (AIR)

61-year-old man with DPPX antibody-positive AIR, colitis, encephalitis refractory to prednisone, rituximab, bortezomib, IVIg; positive for 5/5 disease-associated autoantibodies pre-treatment

Post-treatment: experienced a clinically-significant, 2-line improvement in visual acuity; 3 of 5 autoantibodies became undetectable

Test	Pre-treatment	Month 2	Month 4	Month 6
Visual acuity	20/60	20/40	20/40	20/40
Carbonic anhydrase II Ab	+	-	-	NP*
Tubulin Ab	+	-	-	NP*
PKM2 Ab	+	-	-	NP*
Aldolase Ab	+	+	+	NP*
Enolase Ab	+	+	+	NP*

*NP – not performed

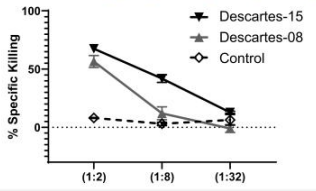
DPPX, Dipeptidyl-peptidase–like protein 6
IVIg, Intravenous immunoglobulin

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

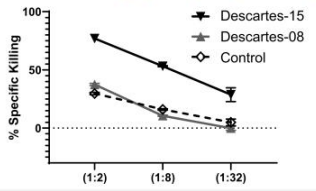
Descartes-15 is an anti-BCMA mRNA CAR-T with potential disruptive features:

- 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

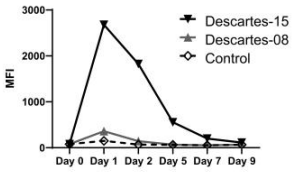
Potent killing (single target exposure)



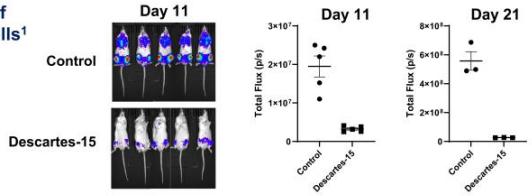
Persistent killing (multiple exposures)



Superior CAR expression



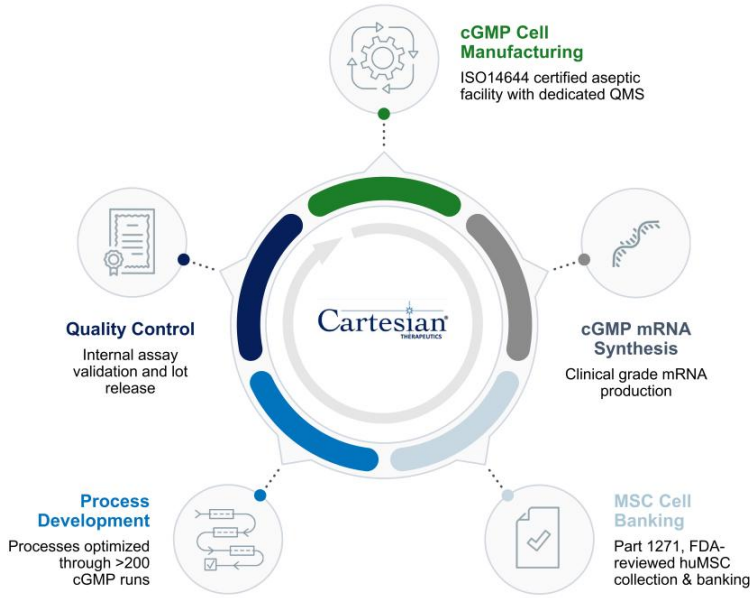
Efficient killing of BCMA+ target cells[1]

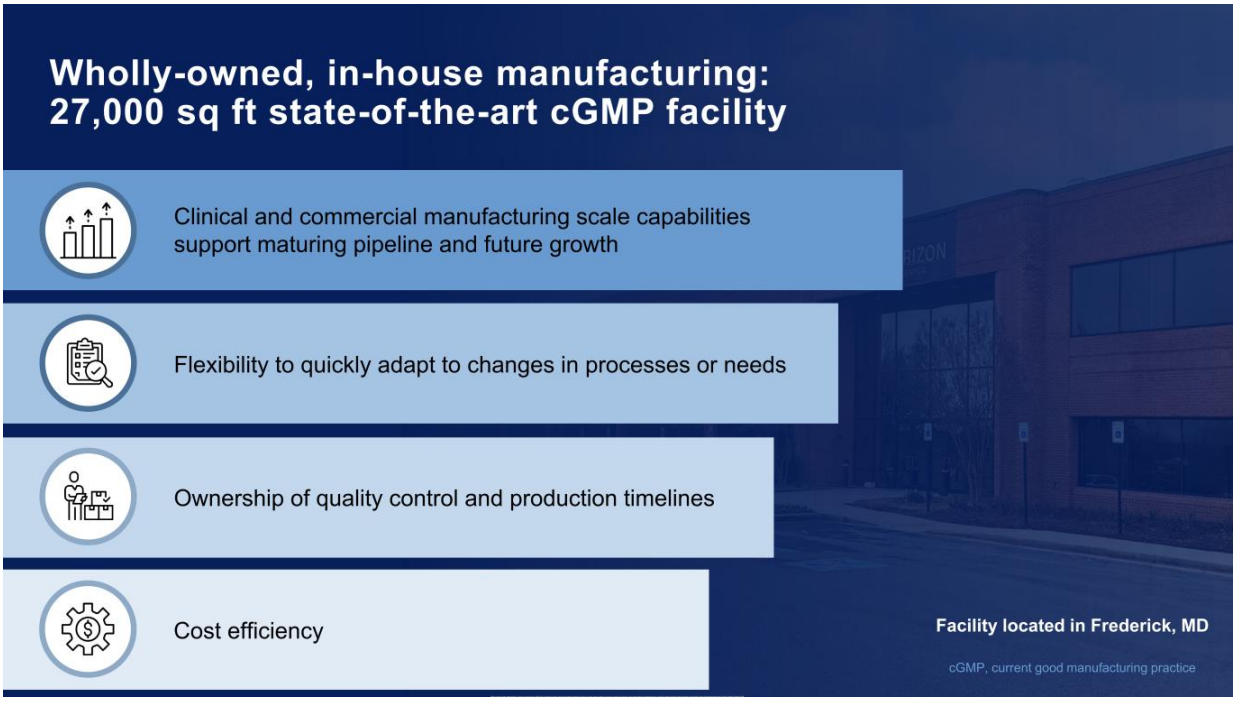


[1] MM1-S disseminated myeloma model in NSG mice infused with either control T-cells or Descartes-15

Cartesian THERAPEUTICS

In-house manufacturing enhances control of product quality, production schedules and costs

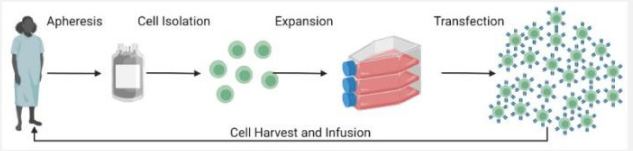



Wholly-owned, in-house manufacturing:
27,000 sq ft state-of-the-art cGMP facility
Clinical and commercial manufacturing scale capabilities support maturing pipeline and future growth
Flexibility to quickly adapt to changes in processes or needs
Ownership of quality control and production timelines
Cost efficiency
Facility located in Frederick, MD
cGMP, current good manufacturing practice

Platform offers potential development opportunities via three modalities: autologous, allogeneic and *in situ*

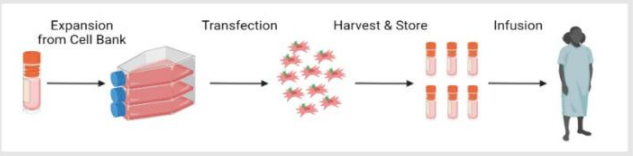
Autologous mRNA CAR-T

- Descartes-08
- Descartes-15: next generation anti-BCMA mRNA CAR-T with >10x potency observed in clinical studies



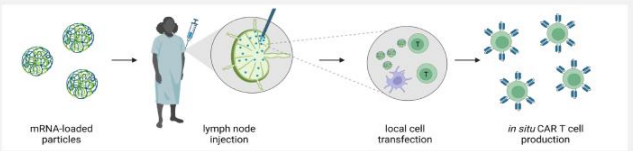
Allogeneic mRNA MSC

- Descartes-33



rLN: *In situ* lymph node transfection

- Undisclosed program



Maturing pipeline offers potential for multiple catalysts

Descartes-08 in MG

Expect to report Phase 2b data mid-2024 — Mid 2024

Descartes-08 in SLE

Plan to initiate Phase 2 in 1H 2024 — 1H 2024

Descartes-08 Additional Indications

Plan to initiate basket studies in additional autoimmune indications in 2H 2024 — 2H 2024

Descartes-15

IND cleared, with first-in-human Phase 1 planning activities underway — 2024

Funding expected to support development of Descartes-08 through Phase 3 and advance additional programs

Strong Financial Position Expected to Support Pipeline Through Key Milestones

$104.8M
Cash as of 3/31/24

2H 2026
Anticipated cash runway into

<60 EMPLOYEES
Based in Gaithersburg, MD

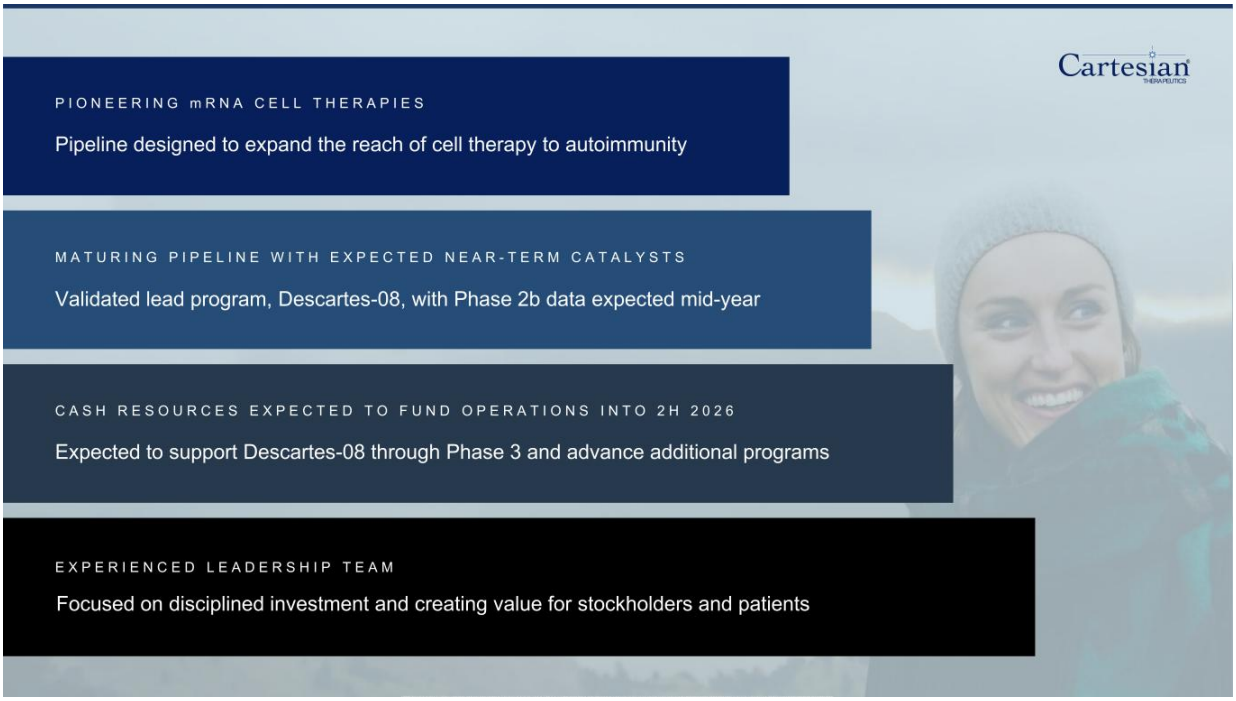
17.8M
Basic shares outstanding

23.3M
Basic shares outstanding upon full conversion of outstanding Series A Preferred*

26.6M
Fully diluted shares outstanding**

*Shares include approximately 166.3 thousand shares of Series A Non-Voting Convertible Preferred Stock that remain subject to beneficial ownership limitations that are convertible into approximately 5.5 million shares of common stock.

**Fully diluted shares include diluted shares as described above, as well as outstanding options, RSUs and warrants.

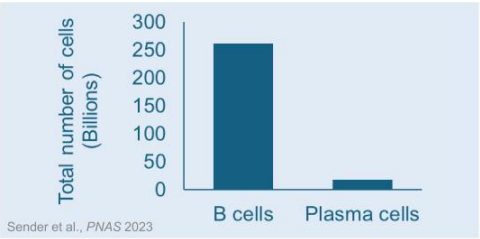

Cartesian
THERAPEUTICS
PIONEERING mRNA CELL THERAPIES
Pipeline designed to expand the reach of cell therapy to autoimmunity
MATURING PIPELINE WITH EXPECTED NEAR-TERM CATALYSTS
Validated lead program, Descartes-08, with Phase 2b data expected mid-year
CASH RESOURCES EXPECTED TO FUND OPERATIONS INTO 2H 2026
Expected to support Descartes-08 through Phase 3 and advance additional programs
EXPERIENCED LEADERSHIP TEAM
Focused on disciplined investment and creating value for stockholders and patients


Cartesian
THERAPEUTICS
CARTESIAN THERAPEUTICS
Pioneering mRNA Cell Therapy for Autoimmunity

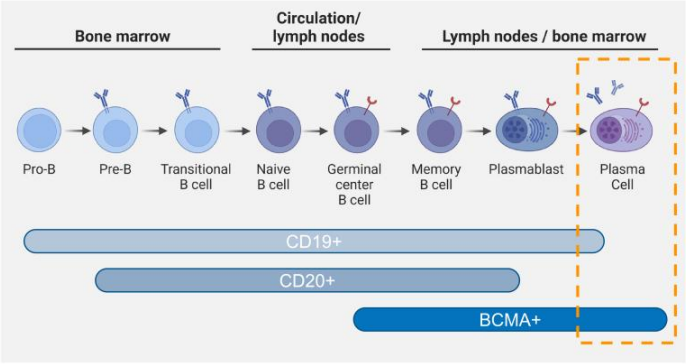
Appendix

Differentially expressed B-cell antigens require distinct CAR-T strategies

- CD19+ and CD20+ cells represent the vast majority of B cells and are ubiquitously distributed
- CD19+ and CD20+ are often expressed on the same B cells
- The exceptions are plasma cells, in which neither antigen is expressed, and plasmablasts, in which CD19+ is expressed, directly responsible for pathogenic autoantibodies
- Plasma cells are rare and tissue-restricted



Sender et al., *PNAS* 2023

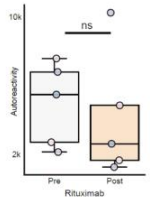


BCMA is a differentiated target with potential for precision CAR-T in patients with autoimmunity

Clinical analyses of antigen-depletion therapies show BCMA-targeting with CAR-T may enable precision reset of autoantibody-producing PCs

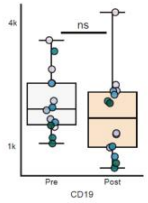
Cartesian Therapeutics

Rituximab
(CD20+ cell depletion)



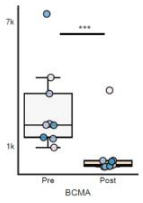
Minimal change in autoreactivity

Anti-CD19 CAR-T
(CD19+ cell depletion)



Minimal change in autoreactivity

Anti-BCMA CAR-T
(BCMA+ cell depletion)



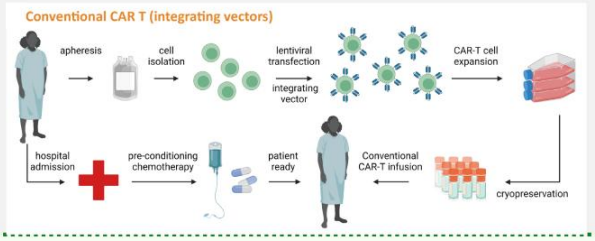
Nearly full reset of autoreactivity

Bodansky et al., doi: 10.1101/2023.12.19.23300188

Cartesian differentiation: All approved CAR T therapies and other trials in the autoimmune space face fundamental hurdles created by integrating vectors

Conventional CAR-T (integrating viral vectors) targeting CD19

- Creates significant burden for patients in three areas
  - hospital admission
  - lymphodepletion/chemotherapy
  - cytokine release syndrome (CRS) risk
- Patients with autoimmunity typically have much lower tolerance for these hurdles relative to cancer patients



mRNA CAR T (no integration) targeting BCMA

- mRNA enables transient expression → no need for significant T cell proliferation
- Eliminates lymphodepletion and enables outpatient administration without CRS