Cartesian Therapeutics Announces Positive Topline Results from Phase 2b Trial of Descartes-08 in Patients with Myasthenia Gravis

July 2, 2024

Trial met primary endpoint with statistical significance, with 71% of myasthenia gravis patients treated with Descartes-08 observed to have a clinically meaningful improvement in MGC score at Month 3 compared to 25% for placebo

Deep and durable responses up to at least six months observed in patients treated with Descartes-08

Safety profile continues to support outpatient administration

Company expects to hold End-of-Phase 2 meeting with the FDA by year-end

Company to host conference call today at 8:00 a.m. ET

GAITHERSBURG, Md., July 02, 2024 (GLOBE NEWSWIRE) -- Cartesian Therapeutics, Inc. (NASDAQ: RNAC) ("Cartesian" or the "Company"), a clinical-stage biotechnology company pioneering mRNA cell therapy for autoimmune diseases, today announced positive topline results from its Phase 2b trial of Descartes-08 in patients with generalized myasthenia gravis (MG).

Descartes-08, Cartesian's lead product candidate, is an autologous mRNA-engineered chimeric antigen receptor T-cell therapy (mRNA CAR-T) directed against the B cell maturation antigen (BCMA). It is designed to be administered as an outpatient treatment without the need for lymphodepleting chemotherapy required to achieve activity with conventional CAR-T cell therapies. Descartes-08 was previously granted Regenerative Medicine Advanced Therapy (RMAT) Designation and Orphan Drug Designation by the U.S. Food and Drug Administration (FDA) for the treatment of MG.

"We believe the positive data presented today demonstrate clinical proof-of-concept of our novel mRNA platform and highlight the potential of Descartes-08 to provide deep and durable improvements for patients with MG," said Carsten Brunn, Ph.D., President and Chief Executive Officer of Cartesian. "Our recently granted RMAT designation supports the continued development of Descartes-08 in collaboration with the FDA, with plans to hold an End-of-Phase 2 meeting by the end of the year. The results also exemplify what we hope to obtain with other assets in our existing and future pipeline."

"MG is a devastating, rare autoimmune disorder with high unmet need for short-course treatments. The current standard of care, chronic use of steroids and other immunosuppressants, is often associated with broad immunosuppression and limited efficacy," said Tahseen Mozaffar, M.D., Professor of Neurology, Pathology and Laboratory Medicine, Director of the Division of Neuromuscular Diseases and Director of the ALS and Neuromuscular Center at the University of California, Irvine. "The durable improvements observed across all disease severity scales, the average of which was approximately three times greater than what is considered clinically meaningful, firmly support the potential for Descartes-08 to serve as an important new therapy for patients with MG that can be administered safely in the outpatient setting. I look forward to participating in its continued development."

Trial Overview and Topline Results

In the Phase 2b double-blind, placebo-controlled, crossover trial, a total of 36 heavily pre-treated, highly symptomatic patients with MG were randomized 1:1 to receive either Descartes-08 or placebo administered as six weekly outpatient infusions without preconditioning chemotherapy. At the conclusion of the trial's Month 3 blinded follow-up assessment, patients receiving placebo were eligible to cross over to Descartes-08 treatment.

The primary efficacy endpoint assessed the proportion of patients with a reduction of five points or more in the MG Composite (MGC) score, a 10-item, 60-point weighted instrument composed of selected components of other validated scales to measure MG severity and impact. Whereas a reduction of three points or more is generally regarded as clinically meaningful, the more stringent endpoint of five points was selected based on clinical responses observed in an earlier study with Descartes-08 in MG. Secondary endpoints assessed safety and tolerability and other validated MG severity scales, including Activities of Daily Living (MG-ADL), Quantitative MG (QMG), and MG Quality of Life Revised Scale (MG-QoL-15R).

The pre-specified primary efficacy dataset (n=26) consisted of a modified intent-to-treat (mITT) population of all subjects enrolled at academic medical centers who received at least one dose of Descartes-08 (n=14) or placebo (n=12) and completed at least one post-baseline MGC score follow-up assessment. The safety dataset comprised all subjects who received at least one dose of Descartes-08 (n=19) or placebo (n=17).

Primary Endpoint

- The trial achieved its primary endpoint with statistical significance in the pre-specified mITT efficacy population, with 71% (10/14) of patients treated with Descartes-08 observed to have 5-point or greater improvements in MGC score at Month 3 compared to 25% (3/12) of patients treated with placebo (p=0.018).

- In addition, the trial also achieved its primary endpoint with statistical significance in the per-protocol population, with 69% (11/16) of patients treated with Descartes-08 observed to have 5-point or greater improvements in MGC score at Month 3 compared to 33% (5/15) of patients treated with placebo (p=0.048).

Secondary Endpoints

- Consistent with previously reported results from the Phase 2a open-label portion of the trial, Descartes-08 responders experienced deep improvements across the MG severity scales at Month 3 (average MG-ADL = -5.6; MGC= -8.3; QMG = -5.0; QoL-15r = -7.9). The improvements seen at Month 3 persisted or further improved in patients evaluated at their Month 4 (n=5) and Month 6 (n=3) follow-up visits, as of the June 19, 2024 data cutoff date.

Safety Results

- Descartes-08 continues to demonstrate a favorable safety profile supporting outpatient administration without the need for lymphodepleting chemotherapy. Consistent with findings from the Phase 2a open-label portion of the trial, Descartes-08 was observed to be well tolerated, and adverse events were transient and mostly mild. Notably, there were no cases of cytokine release syndrome, and no cases of immune effector cell-associated neurotoxicity syndrome.

Updated Phase 2a Open-Label Trial Results

Cartesian today also announced positive updated results from two patients enrolled in the Phase 2a open-label portion of the trial. Both retreated patients experienced rapid improvement in clinical scores and maintained minimal symptom expression for up to one year after receiving a second treatment cycle. The time course and magnitude of treatment response upon retreatment were similar to those seen when the patients were first treated. Four of the seven patients from the Phase 2a portion of the trial maintained clinically meaningful responses for at least one year following initial dosing.

The Company previously announced positive long-term follow up data from the Phase 2a trial in which Descartes-08 was administered in an outpatient setting without preconditioning chemotherapy. Durable depletion of autoantibodies and clinically meaningful improvements in MG severity scores were observed at the one-year follow-up period. The data were subsequently featured during an oral session at the American Society of Gene and Cell Therapy 27th Annual Meeting in May 2024.

Conference Call and Webcast

Cartesian will host a conference call and webcast to discuss the topline results today, Tuesday, July 2, 2024 at 8:00 am ET. To access the conference call, please dial 1-877-317-6789 (toll-free) or 1-412-317-6789 (international) at least 10 minutes prior to the start time and ask to be joined into the Cartesian Therapeutics call. The live audio webcast, along with accompanying slides, can be accessed on the Events & Presentations section of Cartesian's website at https://ir.cartesiantherapeutics.com/news-and-events/events-presentations. A replay of the webcast will be available for a limited time following the event on Cartesian's website.

Descartes-08 for Systematic Lupus Erythematosus (SLE)

Today, Cartesian also announced that the first patient has been dosed in a clinical trial evaluating Descartes-08 in patients with SLE. The Phase 2 open-label trial, which is expected to enroll up to 30 adult patients, is designed to evaluate the safety and tolerability of outpatient administration of Descartes-08 without preconditioning chemotherapy for the treatment of patients with moderate or severe SLE refractory to immunosuppressant therapy.

Appointment of Kemal Malik to Board of Directors

Today, Cartesian also announced the appointment of Kemal Malik, MBBS, to its Board of Directors. Dr. Malik brings to Cartesian over 30 years of global development, regulatory, and commercial expertise at leading pharmaceutical organizations.

About Myasthenia Gravis

Myasthenia gravis (MG) is a chronic autoimmune disorder that causes disabling muscle weakness and fatigue. For most people with MG, the disease is characterized by the presence of antibodies against the acetylcholine receptor, a protein found on the surface of nerve cells that plays a key role in muscle contraction. There is currently no cure for MG, and treatment typically requires chronic immunosuppressive medicines, with their attendant risks and side effects.

About Descartes-08

Descartes-08, Cartesian's lead mRNA cell therapy candidate and a potential first-in-class mRNA-engineered chimeric antigen receptor T-cell therapy (mRNA CAR-T), is an autologous mRNA CAR-T product targeting B-cell maturation antigen (BCMA) in clinical development for generalized myasthenia gravis (MG) and systemic lupus erythematosus. In contrast to conventional DNA-based CAR T-cell therapies, mRNA CAR-T administration does not require preconditioning chemotherapy, can be administered in the outpatient setting, and does not carry the risk of genomic integration associated with cancerous transformation. Descartes-08 has been granted Orphan Drug Designation and Regenerative Medicine Advanced Therapy Designation by the U.S. Food and Drug Administration for the treatment of MG.

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 and Phase 2 development for systematic lupus erythematosus, with a Phase 2 basket trial planned 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 expectation to hold an End-of-Phase 2 meeting with the FDA by the end of 2024, the ability of Descartes-08 to be administered in an outpatient setting or without the need for preconditioning lymphodepleting chemotherapy, 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, or any of 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, 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.

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