Ocugen Announces Positive Clinical Study Update from the Phase 1/2 Trial of OCU400, a Modifier Gene Therapy Product Candidate, for the Treatment of Retinitis Pigmentosa (RP) and Leber Congenital Amaurosis (LCA)

September 13, 2023

- *Favorable safety and tolerability profile of OCU400 investigational drug product in RP and LCA subjects to date*
- *Clinical study update suggests continued positive trends in Best-Corrected Visual Acuity (BCVA) and Multi-Luminance Mobility Testing (MLMT), as well as positive trends in Low-Luminance Visual Acuity (LLVA) among treated eyes*
- 83% (10/12) of subjects demonstrated *stabilization or improvement* in treated eye either on *BCVA or LLVA or MLMT* scores from baseline
- *Notably, 86% (6/7) of RHO* mutation subjects *experienced either stabilization of or increase in MLMT scores from baseline including a subset of 29% (2/7) that demonstrated a 3 Lux luminance level improvement*

MALVERN, Pa., Sept. 13, 2023 (GLOBE NEWSWIRE) -- Ocugen, Inc. (Ocugen or the Company) (NASDAQ: OCGN), a biotechnology company focused on discovering, developing, and commercializing novel gene and cell therapies, biologics, and vaccines, today announced a clinical study update for Retinitis Pigmentosa (RP) participants treated in the Phase 1/2 trial to assess the safety and efficacy of OCU400 for RP associated with *NR2E3* and Rhodopsin (*RHO*) mutations and Leber congenital amaurosis (LCA) with mutation(s) in the *CEP290* gene. This clinical study update is an extension of results provided by Ocugen on April 14, 2023, and includes additional subjects from the high dose group. The Company believes that OCU400—Ocugen's therapeutic approach, utilizing a proprietary modifier gene therapy platform—has the potential to be a gene-agnostic therapeutic for RP and LCA patients with inherited retinal degeneration.

"This clinical study update supports our vision to help change the lives of patients suffering from inherited retinal diseases," said Dr. Shankar Musunuri, Chairman, Chief Executive Officer, and Co-Founder of Ocugen. "We remain dedicated to our mission of pioneering breakthroughs in biotechnology and believe that OCU400 has the potential to have an impact on the future treatment of patients with RP and LCA."

This Phase 1/2 trial is a multicenter, open-label, dose ranging study. A total of 18 subjects with vision impairment due to RP associated with *RHO* and *NR2E3* gene mutations received a unilateral subretinal injection of either a low dose (1.66 x 10^{10} vg/mL), medium dose (3.33 x 10^{10} vg/mL), or high dose (1.66 x 10^{11} vg/mL) of OCU400. The study profile included a diverse group of subjects aged 18-77 years old, with varied disease stages, racial and ethnic profiles, medical histories, and mutation subgroups. Ocugen further expanded this Phase1/2 trial to enroll LCA patients with *CEP290* gene mutation and pediatric patients with *NR2E3*, *RHO* and *CEP290* mutations.

Inherited retinal diseases (IRDs) such as RP and LCA encompass a group of genetic disorders that affect the retina, the light-sensitive tissue at the back of the eye. These diseases often lead to a gradual loss of vision over time and can ultimately result in blindness. Stabilization of vision is crucial for patients with IRDs due to the progressive and degenerative nature of these conditions.

Preserving remaining vision, slowing disease progression, or improving the vision can significantly impact patients' quality of life. It not only enhances the quality of life for affected individuals but also provides hope for future treatments that may ultimately lead to vision restoration. Comprehensive care, early diagnosis, and access to emerging therapies are essential components of a strategy to stabilize vision in IRD patients.

"I am gratified to see the progress we have made in our pursuit of developing a novel gene-agnostic therapy for RP and LCA. Our team's unwavering dedication to advancing modifier gene therapy research demonstrated positive preliminary clinical results that offer renewed hope to patients and their families. We remain resolute in our mission and vision to bring a bright future to those with inherited or age-related retinal diseases through courageous innovation and unwavering determination," said Dr. Arun Upadhyay, Chief Scientific Officer, Head of Research, Development and Medical at Ocugen.

This clinical study update is based on the currently available data from Phase 1 (dose-escalation: Cohort 1, 2 and 3) and the Phase 2 (open enrollment) portion of the study. The exploratory efficacy update includes data for 12 subjects who have completed a minimum of 6-month follow up. The data set comprised of 2 subjects [Cohort 1] with 12-month follow-up, 5 subjects [N=2 from Cohort 1 and N=3 from Cohort 2] with 9-month follow-up, and 5 subjects [N=2 from Cohort 3 and N=3 from Open Enrollment/Phase 2] with 6-month follow-up.

"It is an important steppingstone for Ocugen and its mission to help the nearly 1.6 million patients affected by RP and LCA worldwide. For those suffering from these IRDs, this clinical trial update provides hope. It is encouraging to see a favorable safety and tolerability profile and positive efficacy readout for OCU400 in RP patients," said Dr. Lejla Vajzovic, Associate Professor of Ophthalmology with Tenure, Director of Duke Vitreoretinal Fellowship Program at Duke Eye Center and Duke University School of Medicine and leader in gene-therapy research.

Key efficacy outcomes from 12 subjects demonstrated:
BCVA*:*

- 83% (10/12) of subjects demonstrated stabilization or improvements in treated eyes in BCVA scores from baseline

- 42% (5/12) of OCU400 treated eyes experienced 4-letter improvement and 33% (4/12) treated eyes experienced 7-letter improvement in BCVA from baseline
- 57% (4/7) of *RHO* subjects' treated eyes experienced 4-letter improvement and 43% (3/7) treated eyes experienced 7-letter improvement in BCVA scores from baseline

LLVA:

- 83% (10/12) of subjects demonstrated stabilization or improvement in treated eyes in LLVA scores from baseline
- 42% (5/12) of OCU400 treated eyes experienced 5-letter improvement (1 line) in LLVA from baseline, with 25% (3/7) increasing by 10 letters (2 lines)
- 43% (3/7) of *RHO* subjects experienced 5-letter improvement (1 line) in treated eyes in LLVA scores from baseline, among which 29% (2/7) increased by 10 letters (2 lines)

MLMT:

- 75% (9/12) of subjects demonstrated stabilization or improvement in treated eyes in MLMT scores from baseline
- 33% (4/12) of subjects in the low, medium, and high dose cohorts experienced at least 1 Lux luminance level improvement from baseline in treated eyes, among which 17% (2/12) increased by 3 Lux luminance levels
- 86% (6/7) of *RHO* subjects experienced either stabilization or increases in MLMT scores from baseline, among which 29% (2/7) improved by 3 lux levels

"The RHO mutation affects more than 10,000 people in the US," said Dr. David Birch, Scientific Director, Retina Foundation of the Southwest and Principal investigator of the study. "In my view, the clinical study update supports the gene-agnostic mechanism of action of OCU400 in *RHO* patients. The improvements in BCVA, LLVA and MLMT in this patient population are very exciting and encouraging because stabilization alone could be considered as a treatment benefit."

The clinical study update from the Phase 1/2 clinical trial demonstrated that OCU400 continued to be generally safe and well-tolerated in subjects across different mutations and dose levels. There were no serious adverse events (SAEs) related to the investigational product in the low and medium-dose cohorts. In the high-dose and open-enrollment cohorts, SAEs were reported for two subjects. Adverse events were mostly deemed related to the surgical procedure and resolved within a few days to weeks.

"The clinical study update released by Ocugen appears to have a tangible biological impact on Retinitis Pigmentosa associated with *NR2E3* and *RHO* mutations," said Dr. David Boyer, Clinical Professor of Ophthalmology USC/Keck School of Medicine Los Angeles, CA and Partner, Retina Vitreous Associates Medical Group. "These findings may indicate a huge step forward in the way we approach and treat this condition. We remain optimistic and eager to continue the trial and understand the full potential of OCU400."

Ocugen will continue to monitor long-term safety and efficacy data from the treated patients and provide additional updates.

A webcast and conference call will take place today at 8:30 a.m. ET:

Dial-in Numbers: (800) 715-9871 for U.S. callers and (646) 307-1963 for international callers
Conference ID: 7803227

Webcast: Available on the events section of the Ocugen investor site

About Modifier Gene Therapy
Modifier gene therapy is designed to fulfill unmet medical needs related to retinal diseases, including IRDs, such as RP, LCA, and Stargardt disease, as well as dry AMD. Our modifier gene therapy platform is based on the use of Nuclear hormone receptors (NHRs), master gene regulators, which have the potential to restore homeostasis — the basic biological processes in the retina. Unlike single-gene replacement therapies, which only target one genetic mutation, we believe that our modifier gene therapy platform, through its use of NHRs, represents a novel approach that has the potential to address multiple retinal diseases caused by mutations in multiple genes with one product, and to address complex diseases that are potentially caused by imbalances in multiple gene networks. Currently Ocugen has three modifier gene therapy programs OCU400 (RP, LCA), OCU410 (dry AMD), OCU410ST (Stargardt disease).

About OCU400
OCU400 is the Company's gene-agnostic modifier gene therapy product based on NHR gene, *NR2E3*. *NR2E3* regulates diverse physiological functions within the retina—such as photoreceptor development and maintenance, metabolism, phototransduction, inflammation and cell survival networks. Through its drive functionality, OCU400 resets altered/affected cellular gene-networks and establishes homeostasis—a state of balance, which has the potential to improve retinal health and function in patients with inherited retinal diseases.

About Ocugen, Inc.
Ocugen, Inc. is a biotechnology company focused on discovering, developing, and commercializing novel gene and cell therapies, biologics, and vaccines that improve health and offer hope for patients across the globe. We are making an impact on patients' lives through courageous innovation —forging new scientific paths that harness our unique intellectual and human capital. Our breakthrough modifier gene therapy platform has the potential to treat multiple retinal diseases with a single product, and we are advancing research in infectious diseases to support public health and orthopedic diseases to address unmet medical needs. Discover more at www.ocugen.com and follow us on Twitter and LinkedIn.

Cautionary Note on Forward-Looking Statements
This press release contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995, which are subject to risks and uncertainties, including, but not limited to, statements regarding qualitative assessments of available data, potential benefits, expectations for ongoing clinical trial results, and anticipated timing of clinical trial updates and regulatory interactions. We may, in some cases, use terms such as

“predicts,” “believes,” “potential,” “proposed,” “continue,” “estimates,” “anticipates,” “expects,” “plans,” “intends,” “may,” “could,” “might,” “will,” “should,” or other words that convey uncertainty of future events or outcomes to identify these forward- looking statements. Such statements are subject to numerous important factors, risks, and uncertainties that may cause actual events or results to differ materially from our current expectations, including, but not limited to, the risks that preliminary, interim and top-line clinical trial results may not be indicative of, and may differ from, final clinical data; that unfavorable new clinical trial data may emerge in the Phase 1/2 clinical trial or through further analyses of existing clinical trial data; that earlier non-clinical and clinical data and testing of may not be predictive of the results or success of later clinical trials; and that that clinical trial data are subject to differing interpretations and assessments, including by regulatory authorities. These and other risks and uncertainties are more fully described in our periodic filings with the Securities and Exchange Commission (SEC), including the risk factors described in the section entitled “Risk Factors” in the quarterly and annual reports that we file with the SEC. Any forward-looking statements that we make in this press release speak only as of the date of this press release. Except as required by law, we assume no obligation to update forward-looking statements contained in this press release whether as a result of new information, future events, or otherwise, after the date of this press release.

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