MeiraGTx Announces Acquisition of Vector Neurosciences, Gains Phase 2 Gene Therapy Program for Parkinson's Disease

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LONDON and NEW YORK, Oct. 09, 2018 (GLOBE NEWSWIRE) -- MeiraGTx Holdings Plc (NASDAQ:MGTX), a vertically integrated, clinical stage gene therapy company, today announced that it has acquired Vector Neurosciences Inc. ("Vector") in an all-stock transaction. As a result of the acquisition, which was signed and closed October 5, 2018, MeiraGTx has expanded its portfolio of clinical stage product candidates to include adeno-associated virus encoding glutamic acid decarboxylase (AAV-GAD), a gene therapy product candidate ready for continued Phase 2 clinical development for Parkinson's disease. A prior Phase 2 clinical trial of AAV-GAD was completed and was the first successful randomized, double-blind, sham-controlled trial of its kind for a gene therapy product candidate targeting a brain disorder.

"This strategic acquisition gives us an exciting mid-stage product candidate with promising, sham-controlled clinical data and expands our portfolio of potential therapies for neurodegenerative diseases," said Alexandria Forbes, Ph.D., president and chief executive officer of MeiraGTx. "We are excited to continue moving AAV-GAD through clinical development and look forward to potentially offering a novel therapy to patients with Parkinson's disease."

"With demonstrated expertise in gene therapy clinical development and manufacturing, we are very pleased to work with the talented team at MeiraGTx to continue the development of this novel gene therapy product candidate. AAV-GAD has the potential to transform the treatment of Parkinson's disease patients, providing hope for patients with limited treatment options," said Michael Kaplitt, M.D., Ph.D., co-founder of Vector.

About the AAV-GAD Phase 2 Clinical Results
In a blinded Phase 2 clinical trial of AAV-GAD in patients with medically refractory Parkinson's disease, 45 patients were randomized 1:1 to receive either AAV-GAD gene therapy delivered by injection into the subthalamic nucleus (STN) on both sides of the brain or bilateral sham surgery. Subjects were followed for one year and all results remained blinded until the final treated patient reached the 6-month primary endpoint. The trial met the pre-specified, per-protocol primary endpoint, with a significant improvement in the off-medication motor section of the Unified Parkinson's Disease Rating Scale (UPDRS) part 3 compared to baseline. There was also a significant difference in the degree of improvement compared with patients in the sham arm. Other endpoints also showed significant improvements in AAV-GAD treated patients compared to patients in the sham arm.

- The primary outcome measure was the 6-month change from baseline in double-blind assessment of off-medication UPDRS motor scores.
    - At the 6-month endpoint, UPDRS score for the AAV-GAD group decreased by 8.1 points (SD 1.7, 23.1%; $p<0.0001$) and by 4.7 points in the sham group (1.5, 12.7%; $p=0.003$).
    - The AAV-GAD group showed a significantly greater improvement from baseline in UPDRS scores compared with the sham group over the 6-month course of the study (RMANOVA, $p=0.04$).
- Significant difference in the response rate between groups, with responders being defined as patients achieving a 9-point or more improvement in UPDRS, which may be deemed clinically meaningful.
    - At six months, 50% of AAV-GAD treated patients were responders compared with only 14% of patients in the sham arm.
    - At 12 months, response rates were 63% and 24%, in AAV-GAD and sham arms respectively.
- A significant improvement in complications of medical therapy as measured by the UPDRS part 4 was observed in the AAV-GAD group at both six and 12 months, and not in patients in the sham arm at either time point.
- A significant decline in duration of disabling dyskinesia was observed only in the AAV-GAD treated patients.
- A significantly greater number of AAV-GAD treated patients showed more than one hour increase in the time spent in a good condition on medication ("ON" time) compared with patients in the sham arm.

AAV-GAD was well-tolerated, with no significant adverse events related to the therapy and no speech or cognitive complications were observed. The most commonly reported adverse events were transient mild or moderate headache (7 in treated arm vs. 2 in sham arm), nausea (6 in treated arm vs. 2 in sham arm) and worsening of Parkinson's disease (0 in treated arm vs. 8 in sham arm). The results of the trial were published in the March 2011 issue of *The Lancet Neurology*, the August 2014 issue of *Journal of Clinical Investigation* and the April 2017 issue of *JCI Insight,* building upon publications of the Phase 1 trial data in *The Lancet* and the *Proceedings of the National Academy of Sciences*.

In addition to these positive clinical outcomes, flurodeoxyglucose (FDG) positron emission tomography (PET) analyses provided objective biological confirmation of improvements in abnormal brain networks associated with Parkinson's disease following AAV-GAD gene therapy. These results were observed in patients treated in both Phase 1 and Phase 2 studies. Blinded analyses demonstrated significant improvements in abnormal thalamic metabolism, a key node in the movement circuitry, in the AAV-GAD treated patients. This pattern of brain network activity was not seen in untreated hemispheres or patients in the sham arm. Furthermore, a specific pattern of brain network activity was identified in those subjects with clinical improvements in the sham arm which was different from the pattern observed in AAV-GAD responders.

About AAV-GAD
AAV-GAD is an investigational gene therapy medicine designed to deliver the glutamic acid decarboxylase (GAD) gene to the subthalamic nucleus in order to increase production of GABA, the primary inhibitory neurotransmitter in the human brain. GAD is the rate-limiting enzyme in the synthesis of

GABA, therefore it is believed that increasing subthalamic nucleus GAD expression through gene therapy will result in normalization of motor circuits and improve symptoms in Parkinson's disease patients without affecting other brain regions that can be responsible for complications of existing therapies. AAV-GAD has received Fast Track designation from the United Stated Food and Drug Administration.

About Parkinson's Disease
Affecting nearly one million Americans and 10 million worldwide, Parkinson's disease is the second-most common neurodegenerative disease after Alzheimer's disease and is the 14th-leading cause of death in the United States. It is associated with a progressive loss of motor control (e.g., shaking or tremor at rest and lack of facial expression), as well as non-motor symptoms (e.g., depression and anxiety). There is no cure for Parkinson's disease and 60,000 new cases are diagnosed each year in the United States alone.

About MeiraGTx
MeiraGTx (NASDAQ:MGTX) is a vertically integrated, clinical stage gene therapy company with four ongoing clinical programs and a broad pipeline of preclinical and research programs. MeiraGTx has core capabilities in viral vector design and optimization and gene therapy manufacturing, as well as a potentially transformative gene regulation technology. Led by an experienced management team, MeiraGTx has taken a portfolio approach by licensing, acquiring and developing technologies that give depth across both product candidates and indications. MeiraGTx's initial focus is on three distinct areas of unmet medical need: inherited retinal diseases, severe forms of xerostomia and neurodegenerative diseases. Though initially focusing on the eye, salivary gland and central nervous system, MeiraGTx intends to expand its focus in the future to develop additional gene therapy treatments for patients suffering from a range of serious diseases.

For more information, please visit www.meiragtx.com.

Forward-Looking Statements
This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this press release that do not relate to matters of historical fact should be considered forward-looking statements, including, without limitation, statements regarding product pipeline, anticipated product benefits, goals and strategic priorities, product candidate development, growth expectations or targets and pre-clinical and clinical data, as well as statements that include the words "expect," "intend," "plan," "believe," "project," "forecast," "estimate," "may," "should," "anticipate" and similar statements of a future or forward-looking nature. These forward-looking statements are based on management's current expectations. These statements are neither promises nor guarantees, but involve known and unknown risks, uncertainties and other important factors that may cause actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements, including, but not limited to, our incurrence of significant losses; any inability to achieve or maintain profitability, acquire additional capital, identify additional and develop existing product candidates, continue operating as a going concern, successfully execute strategic priorities, bring product candidates to market, build-out the manufacturing facility and processes, successfully enroll patients in and complete clinical trials, accurately predict growth assumptions, recognize benefits of any orphan drug designations, retain key personnel or attract qualified employees, or incur expected levels of operating expenses; failure of early data to predict eventual outcomes; failure to obtain FDA or other regulatory approval for product candidates within expected time frames or at all; the novel nature and impact of negative public opinion of gene therapy; failure to comply with ongoing regulatory obligations; contamination or shortage of raw materials; changes in healthcare laws; risks associated with our international operations; significant competition in the pharmaceutical and biotechnology industries; dependence on third parties; risks related to intellectual property; litigation risks; and the other important factors discussed under the caption "Risk Factors" in our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2018 as such factors may be updated from time to time in our other filings with the SEC, which are accessible on the SEC's website at www.sec.gov. These and other important factors could cause actual results to differ materially from those indicated by the forward-looking statements made in this press release. Any such forward-looking statements represent management's estimates as of the date of this press release. While we may elect to update such forward-looking statements at some point in the future, unless required by law, we disclaim any obligation to do so, even if subsequent events cause our views to change. Thus, one should not assume that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements. These forward-looking statements should not be relied upon as representing our views as of any date subsequent to the date of this press release.

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