Neurocrine Biosciences and Voyager Therapeutics Announce Publication of Phase 1b Trial Results of VY-AADC for Parkinson's Disease in the Annals of Neurology

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SAN DIEGO and CAMBRIDGE, Mass., March 28, 2019 (GLOBE NEWSWIRE) -- Neurocrine Biosciences, Inc. (NASDAQ: NBIX) and Voyager Therapeutics, Inc. (NASDAQ: VYGR) today announced the publication of interim results from the Phase 1b trial of VY-AADC, an investigational gene therapy treatment for Parkinson's disease, in the peer-reviewed journal, *Annals of Neurology*. The publication titled "Magnetic Resonance Imaging-Guided Phase 1 Trial of Putaminal AADC Gene Therapy for Parkinson's Disease," can be accessed online. The publication reports data from patients in this trial who were followed for up to three years (Cohort 1), two years (Cohort 2), or 18 months (Cohort 3) as reported in November 2018.

"The interim results from this Phase 1b trial demonstrated that administration of VY-AADC to the putamen using a novel technique, which included intraoperative monitoring with magnetic resonance imaging guidance, facilitated targeted delivery of the investigational gene therapy," said Chad Christine, M.D., Professor of Neurology, University of California, San Francisco and Investigator in the Phase 1b trial of VY-AADC. "Additionally, administration of VY-AADC resulted in dose-dependent increases in AADC enzyme expression and improvements in clinical measures and has been well-tolerated to date."

About the Phase 1b trial of VY-AADC

The Phase 1b, open-label trial included 15 patients with Parkinson's disease and disabling motor fluctuations, treated with a single administration of VY-AADC. The primary objectives of the trial were to assess the safety, tolerability and distribution of ascending doses of VY-AADC administered under magnetic resonance imaging (MRI) guidance to the putamen, a region of the brain associated with impaired motor function in Parkinson's disease.

Secondary objectives included assessment of AADC enzyme expression and activity in the putamen measured by positron emission tomography (PET) using [^{18}F] fluorodopa (or ^{18}F-DOPA), which reflects the capacity to convert levodopa to dopamine. Other secondary measures included assessments of motor function and activities of daily living, as measured by the Unified Parkinson's Disease Rating Scale (UPDRS-III and UPDRS-II, respectively), quality of life, and a patient-completed Hauser diary. Daily requirements for anti-Parkinsonian medications were also measured.

About the Phase 2 RESTORE-1 Clinical Trial

Based on the results from this Phase 1b trial and a separate Phase 1 trial administering VY-AADC with a posterior infusion trajectory, Voyager initiated RESTORE-1, a Phase 2, randomized, placebo-surgery controlled, double-blinded, multi-center, clinical trial to evaluate the safety and efficacy of VY-AADC in patients who have been diagnosed with Parkinson's disease for at least four years, are not responding adequately to oral medications, and have at least three hours of OFF time during the day as measured by a validated self-reported patient diary.

For more information about the RESTORE-1 clinical trial, including eligibility criteria, please visit restore1study.com.

About Neurocrine Biosciences and Voyager Therapeutics Strategic Collaboration

In January 2019, Neurocrine Biosciences and Voyager Therapeutics announced a strategic collaboration focused on the development and commercialization of gene therapy programs. VY-AADC for Parkinson's disease and VY-FXN01 for Friedreich's ataxia, as well as rights to two programs to be determined. This collaboration combines Neurocrine Biosciences' expertise in neuroscience, drug development and commercialization with Voyager's innovative gene therapy programs targeting severe neurological diseases. The collaboration became effective in March 2019 following the expiration of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976.

About Parkinson's Disease and VY-AADC

Parkinson's disease is a chronic, progressive and debilitating neurodegenerative disease that affects approximately 1 million people in the U.S. and 6 million people worldwide[1]. Parkinson's disease is characterized by a loss of dopamine and its function. Dopamine is a chemical "messenger" that is produced in the brain and is involved in the control of movement. Dopamine is made in the brain when the enzyme AADC (Aromatic l-amino acid decarboxylase) converts the chemical levodopa to dopamine. Levodopa, AADC, and dopamine are each present at normal levels in healthy people. As Parkinson's disease worsens, there is less AADC enzyme in parts of the brain where it is needed to convert levodopa to dopamine. When this happens, patients' motor function may worsen with a less predictable response to medications.

VY-AADC, an investigational gene therapy, is designed to put the AADC enzyme into brain cells where it can convert levodopa to dopamine. To do this, the *AADC* gene is delivered inside a transporter called "adeno-associated viral vector" (AAV). Interim results from an open-label Phase 1b trial demonstrated that administration of VY-AADC to the putamen using intraoperative monitoring with MRI facilitated targeted delivery of the investigational gene therapy with dose-dependent increases in AADC enzyme expression and improvements in clinical measures and has been well-tolerated to date.

About Neurocrine Biosciences

Neurocrine Biosciences, a San Diego based biopharmaceutical company, is focused on developing treatments for neurological and endocrine related disorders. The company discovered, developed and markets INGREZZA® (valbenazine) capsules, the first FDA-approved treatment for adults with tardive dyskinesia, an involuntary movement disorder. Neurocrine also discovered and led the Phase II clinical development of ORILISSA® (elagolix), the first FDA-approved oral medication for the management of endometriosis with associated moderate to severe pain in over a decade, which is marketed by AbbVie as part of a collaboration to develop and commercialize elagolix for women's health. Neurocrine's clinical development programs include opicapone, an adjunctive therapy to levodopa/DOPA decarboxylase inhibitors for Parkinson's disease patients, elagolix for uterine fibroids (with AbbVie), valbenazine for the treatment of Tourette syndrome, NBI-74788 for the treatment of congenital adrenal hyperplasia (CAH), and early-stage gene therapies for neurological disorders including Parkinson's disease and Friedreich's ataxia, acquired through a collaboration with Voyager Therapeutics. For more information and the latest updates from Neurocrine Biosciences, please visit www.neurocrine.com.

About Voyager Therapeutics

Voyager Therapeutics is a clinical-stage gene therapy company focused on developing life-changing treatments for severe neurological diseases. Voyager is committed to advancing the field of AAV gene therapy through innovation and investment in vector engineering and optimization, manufacturing, and dosing and delivery techniques. Voyager's wholly-owned and collaborative pipeline focuses on severe neurological diseases in need of effective new therapies, including Parkinson's disease, a monogenic form of ALS called SOD1, Huntington's disease, Friedreich's ataxia, Alzheimer's disease, and other neurodegenerative diseases related to defective or excess aggregation of tau and alpha-synuclein proteins in the brain. Voyager has strategic collaborations with Sanofi Genzyme, AbbVie and Neurocrine Biosciences. Founded by scientific and clinical leaders in the fields of AAV gene therapy, expressed RNA interference and neuroscience, Voyager Therapeutics is headquartered in Cambridge, Massachusetts. For more information on Voyager Therapeutics, please visit the company's website at www.voyagertherapeutics.com or follow @VoyagerTx on Twitter and LinkedIn.

Neurocrine Biosciences Forward-Looking Statements

In addition to historical facts, this press release contains forward-looking statements that involve a number of risks and uncertainties. These statements include, but are not limited to, statements related to: the potential benefits to be derived from the Voyager Therapeutics collaboration agreement, including any statements related to Voyager's proprietary CNS-focused gene therapy platform and Neurocrine's ability to leverage such platform; Neurocrine's ability to expand its research and development pipeline, and Neurocrine's ability to develop disease modifying and potentially curative treatments for diseases, including Parkinson's disease and Friedreich's ataxia. Among the factors and risks that could cause actual results to differ materially from those indicated in the forward-looking statements are risks that the benefits of the agreements with Voyager may never be realized; risks that the product candidates licensed from Voyager may not obtain regulatory approval from the FDA or other regulatory agencies, or such approval may be delayed or conditioned; risks that development activities related to the product candidates licensed from Voyager may not be completed on time or at all; risks associated with the Company's dependence on Voyager for research, development and manufacturing activities; risks that ongoing or future clinical trials may not be successful or replicate previous clinical trial results, or may not be predictive of real-world results or of results in subsequent clinical trials; risks and uncertainties relating to competitive products and technological changes that may limit demand for product candidates licensed from Voyager; risks that the product candidates licensed from Voyager may be precluded from commercialization by the proprietary rights of third parties; and other risks that are described in the Company's periodic reports filed with the Securities and Exchange Commission, including without limitation the Company's annual report on Form 10-K for the year ended December 31, 2018. Neurocrine disclaims any obligation to update the statements contained in this press release after the date hereof.

Voyager Forward-Looking Statements

This press release contains forward-looking statements for the purposes of the safe harbor provisions under The Private Securities Litigation Reform Act of 1995 and other federal securities laws. The use of words such as "may," "might," "will," "would," "should," "expect," "plan," "anticipate," "believe," "estimate," "undoubtedly," "project," "intend," "future," "potential," or "continue," and other similar expressions are intended to identify forward-looking statements. For example, all statements Voyager makes regarding the initiation, timing, progress, activities, goals and reporting of results of its preclinical programs and clinical trials and its research and development programs, the potential benefits and future operation of the collaboration agreements with AbbVie and Neurocrine, including any potential future payments thereunder, its ability to advance its AAV-based gene therapies into, and successfully initiate, enroll and complete, clinical trials, the potential clinical utility of its product candidates, its ability to continue to develop its gene therapy platform, its ability to perform under existing collaborations with, among others, Sanofi Genzyme, AbbVie and Neurocrine and to add new programs to its pipeline, and the regulatory pathway of, and the timing or likelihood of its regulatory filings and approvals for, any of its product candidates, are forward looking. All forward-looking statements are based on estimates and assumptions by Voyager's management that, although Voyager believes to be reasonable, are inherently uncertain. All forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those that Voyager expected. Such risks and uncertainties include, among others, those related to the initiation and conduct of preclinical studies and clinical trials; the availability of data from clinical trials; the expectations for regulatory communications, submissions and approvals, including antitrust approvals related to Voyager's collaborations; the continued development of the gene therapy platform; Voyager's scientific approach and general development progress; the sufficiency of cash resources; the possibility of timing of AbbVie's exercise of its development and license options under its collaborations, and the availability or commercial potential of Voyager's product candidates. These statements are also subject to a number of material risks and uncertainties that are described in Voyager's most recent Annual Report on Form 10-K filed with the Securities and Exchange Commission, as updated by its subsequent filings with the Securities and Exchange Commission. Any forward-looking statement speaks only as of the date on which it was made. Voyager undertakes no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise, except as required by law.

[1] www.michaelfox.org

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