February 23, 2011

Trevena Initiates Phase 2 Study of TRV120027 for Acute Heart Failure

First biased GPCR ligand from Trevena portfolio enters clinical proof-of-concept trial

KING OF PRUSSIA, Pa.--(BUSINESS WIRE)-- Trevena Inc., the leader in G-protein coupled receptor (GPCR) biased ligand drug discovery, today announced the initiation of a Phase 2a clinical trial with its lead program, TRV120027, a beta-arrestin biased angiotensin II type 1 receptor (AT1R) ligand, the first biased ligand designed to treat patients with acute heart failure (AHF).

In this randomized, placebo-controlled, double-blind, dose-ranging study, the hemodynamic effects of TRV120027 will be assessed in patients with stable heart failure. The goal of the phase 2 trial is to demonstrate that TRV120027 rapidly and predictably improves hemodynamics while improving cardiac output and protecting renal function, as seen in preclinical species. In patients suffering from AHF, these titratable pharmacologic effects are expected to result in rapid symptom improvement.

The primary endpoints of the study, expected to enroll approximately 32 patients, are evaluation of the safety and tolerability of TRV120027 and measurement of its effects on pulmonary capillary wedge pressure, an important indicator of dyspnea in patients with heart failure. Secondary trial endpoints include effects on other hemodynamic parameters, neurohormonal activation and renal markers.

"This trial represents a significant milestone for Trevena," said Maxine Gowen, Ph.D., chief executive officer of Trevena. "It will allow us to demonstrate the pharmacology of TRV120027 in heart failure patients, which results from its functional selectivity at this critical receptor."

Results from the trial will build upon the data from extensive preclinical work and a phase 1 study completed in 2010, in which TRV120027 was shown to be safe, well-tolerated and have PK consistent with a high degree of titratability. The effects observed will inform dose selection for supportive and pivotal trials in which the efficacy of TRV120027 will be assessed in patients with AHF. David Soergel, M.D., Head of Clinical Development at Trevena, added, "TRV120027 is a first-in-class agent that, because of its spectrum of biological effects, could provide a major advance in the treatment of AHF. TRV120027 targets the angiotensin receptor in a unique way, producing blockade of the G-protein mediated adverse effects of angiotensin II while simultaneously unmasking beneficial pharmacology mediated by beta-arrestin."

About Acute Heart Failure

AHF represents a serious challenge for patients, physicians and healthcare systems. The American Heart Association estimated that heart failure cost the U.S. healthcare system

more than $37 billion in 2007, including direct costs of $20 billion. AHF is already the leading reason for hospitalization of individuals over 65 years old in the United States, with an estimated 1.5 million admissions last year, and is the most costly diagnosis for Medicare in the US. Despite the significance of this problem, current therapies are not producing meaningful improvements in patient outcomes. AHF incidence is increasing unchecked, and both heart failure mortality and hospital re-admission following an AHF event remain extremely high. For all of these reasons, there is an urgent need for better treatments, and a clear incentive for regulators and payers to approve and reimburse them.

About Trevena and Biased Ligands

Trevena, Inc. is a clinical stage pharmaceutical company focused on discovering and developing the next generation of G-protein coupled receptor (GPCR) targeted medicines. GPCRs are the targets for at least one-third of modern medicinal products, and they remain the predominant class of targets under clinical evaluation. Despite the past success of GPCR drugs, there is a significant opportunity to enhance the therapeutic properties of these molecules by specifically activating selected receptor signals. Trevena's expertise lies in understanding which signaling pathways downstream of a GPCR are associated with beneficial versus adverse biological effects, and in engineering "biased ligands" that activate only the beneficial pathways to unlock new biology and avoid drug adverse effects. This approach builds on extensive research from the laboratories of leading scientists in the GPCR field - Robert Lefkowitz, M.D. and Howard Rockman, M.D., at the Duke University Medical Center. Trevena's platform can be broadly applied across therapeutic areas and its pipeline currently includes programs in cardiovascular and CNS diseases, with additional early research activities focused in inflammation. Founded in 2008, Trevena is based in King of Prussia, Pennsylvania and is a privately held company backed by leading investors including Alta Partners, Healthcare Ventures, NEA, Polaris and Yasuda Enterprise Development Company.

For more information about the company, please visit www.trevenainc.com.

Source: Trevena Inc.