Global Blood Therapeutics Announces Publication of Preclinical GBT440 Results in British Journal of Haematology that Support Sickle Cell Disease (SCD) Program

July 8, 2016

Data Suggest the Potential of GBT440 to Reduce Sickling, Extend the Circulating Half-Life of Red Blood Cells and Decrease Excessive Erythropoiesis in SCD

SOUTH SAN FRANCISCO, Calif., July 8, 2016 /PRNewswire/ -- Global Blood Therapeutics, Inc. (GBT) (NASDAQ: GBT), a biopharmaceutical company developing novel therapeutics for the treatment of grievous blood-based disorders with significant unmet needs, today announced publication of preclinical GBT440 results in sickle cell disease (SCD) in the July 5th online edition of the *British Journal of Haematology,* http://onlinelibrary.wiley.com/doi/10.1111/bjh.14214/abstract. GBT440 is a novel small molecule that binds specifically to hemoglobin (the oxygen-carrying protein in red blood cells) and is designed to inhibit sickle hemoglobin (HbS) polymer formation. GBT is developing GBT440 as a potentially disease-modifying therapy for SCD and is currently evaluating it in an ongoing Phase 1/2 study in adults (GBT440-001) and a Phase 2a study in adolescents, age 12 to 17 years (GBT440-007).

"One promising strategy for preventing red blood cell sickling and subsequently modifying sickle cell disease over the long term involves inhibiting polymerization of HbS in red blood cells. This can be achieved by increasing the proportion of oxygenated HbS in those cells," said David R. Archer, Ph.D., study author and associate professor at the Aflac Cancer and Blood Disorders Center of Children's Healthcare of Atlanta and the Department of Pediatrics, Emory University School of Medicine. "We believe our preclinical results provide strong evidence that GBT440 inhibits HbS polymerization and red blood cell sickling, which is important because it addresses the underlying pathophysiology of sickle cell disease and has the potential to change its devastating clinical course."

Results of the preclinical studies showed that in vitro, GBT440 dose-dependently increased the affinity of HbS for oxygen, delayed polymerization of HbS and reduced the number of sickled red blood cells (RBCs) in whole blood from SCD patients. Additionally, in an animal model of SCD, GBT440 inhibited RBC sickling, prolonged the half-life of RBCs and reduced reticulocyte counts. It also exhibited favorable pharmacokinetic properties in various animal species, suggesting the potential for once-daily oral dosing in SCD patients.

"Our preclinical work has developed a foundation of evidence that GBT440 is a potent inhibitor of the polymerization of HbS. We continue to build on these data with our ongoing Phase 1/2 study, which has shown that GBT440 was well tolerated over 90 days of dosing, and that all SCD patients who received multiple doses of GBT440 exhibited improvements in one or more clinical markers of hemolysis and anemia," said Ted W. Love, M.D., chief executive officer of GBT. "Our next step is to initiate a pivotal trial in adults with SCD later this year."

About Sickle Cell Disease (SCD)

SCD is a chronic, inherited blood disorder caused by a genetic mutation in the beta-chain of hemoglobin, which results in the formation of abnormal hemoglobin known as HbS. In its deoxygenated state, HbS has a propensity to polymerize, or bind together into long, rigid rods within a RBC. As a consequence, the normally round and flexible RBCs become rigid and elongated into a sickled shape. Polymerization causes the destruction of RBCs, known as hemolytic anemia. In addition, the sickled RBCs, which do not flow properly in the bloodstream, clog small blood vessels and reduce blood flow to the organs. This results in inadequate oxygen delivery, or hypoxia, to all body tissues. Beginning in childhood, SCD patients suffer unpredictable and recurrent episodes or crises of severe pain due to blocked blood flow to organs, which often lead to psychosocial and physical disabilities. This blocked blood flow, combined with hemolytic anemia, can eventually lead to multi-organ damage and early death.

About GBT440

GBT is developing GBT440 as an oral, once-daily therapy for patients with SCD. GBT440 works by increasing hemoglobin's affinity for oxygen. Since oxygenated HbS does not polymerize, GBT believes that GBT440 blocks polymerization and the resultant sickling of RBCs. With the potential to restore normal hemoglobin function and improve oxygen delivery, GBT440 may be capable of modifying the progression of SCD. The U.S. Food and Drug Administration has granted GBT440 both Fast Track and Orphan Drug designation for the treatment of patients with SCD in recognition of the critical need for new treatments.

GBT is also developing GBT440 for the potential treatment of hypoxemic pulmonary disorders, including idiopathic pulmonary fibrosis (IPF). Emerging data suggest that hemoglobin modifiers such as GBT440 have the potential to restore normal hemoglobin function and increase oxygen uptake in the lungs, resulting in improved oxygen delivery to tissues.

About Global Blood Therapeutics

Global Blood Therapeutics, Inc. is a clinical-stage biopharmaceutical company dedicated to discovering, developing and commercializing novel therapeutics to treat grievous blood-based disorders with significant unmet needs. GBT is developing its lead product candidate, GBT440, as an oral, once-daily therapy for sickle cell disease (SCD) and is currently evaluating GBT440 in a Phase 1/2 study in both healthy subjects and adults with SCD

and a Phase 2a study in adolescents. GBT is also investigating GBT440 for the treatment of hypoxemic pulmonary disorders in an ongoing Phase 2a study in patients with idiopathic pulmonary fibrosis (IPF). In addition to GBT440, GBT is engaged in research and development activities with an oral kallikrein inhibitor for the prevention of hereditary angioedema (HAE) attacks. To learn more, please visit: www.globalbloodtx.com.

Forward-Looking Statements

Statements we make in this press release may include statements that are not historical facts and are considered forward-looking within the meaning of Section 27A of the Securities Act of 1933, as amended and Section 21E of the Securities Exchange Act of 1934, as amended. We intend these forward-looking statements, including statements regarding the therapeutic potential of GBT440 and its potential to change the clinical course of SCD, the potential for once-daily oral dosing of GBT440, our plans to initiate a pivotal trial in adults with SCD and the timing thereof, to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act and Section 21E of the Securities Exchange Act and are making this statement for purposes of complying with those safe harbor provisions. These forward-looking statements reflect our current views about our plans, intentions, expectations, strategies and prospects, which are based on the information currently available to us and on assumptions we have made. We can give no assurance that the plans, intentions, expectations or strategies will be attained or achieved, and furthermore, actual results may differ materially from those described in the forward-looking statements and will be affected by a variety of risks and factors that are beyond our control including, without limitation, the risks that our clinical and preclinical development activities may be delayed or terminated for a variety of reasons, that regulatory authorities may disagree with our clinical development plans or require additional studies or data to support further clinical investigation of our product candidate, and that drug-related adverse events may be observed in later stages of clinical development, along with those set forth in our Annual Report on Form 10-K for the fiscal year ended December 31, 2015 and in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2016, as well as discussions of potential risks, uncertainties and other important factors in our subsequent filings with the U.S. Securities and Exchange Commission. Except as required by law, we assume no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

To view the original version on PR Newswire, visit:http://www.prnewswire.com/news-releases/global-blood-therapeutics-announces-publication-of-preclinical-gbt440-results-in-british-journal-of-haematology-that-support-sickle-cell-disease-scd-program-300295782.html

SOURCE Global Blood Therapeutics, Inc.

Myesha Edwards (investors), Global Blood Therapeutics, 650-351-4730, investor@globalbloodtx.com; Julie Normart (media), BrewLife, 415-946-1087, media@globalbloodtx.com