Global Blood Therapeutics Announces New Clinical Data that Continue to Support Safety and Efficacy Profile of GBT440 as a Potentially Disease-Modifying Therapy for Sickle Cell Disease

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90-Day Data Show Sustained Treatment Response and Support Company's Plan to Initiate Pivotal Trial This Year
Results Presented at European Hematology Association's (EHA) 21st Congress
Company to Host Webcast Today at 1:30 p.m. CEST/7:30 a.m. ET to Discuss Data

SOUTH SAN FRANCISCO, Calif., June 10, 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 new results from its ongoing Phase 1/2 GBT440-001 study in sickle cell disease (SCD) that further support the company's plans to develop GBT440 as a potential disease-modifying therapy for SCD. The data being presented today at the European Hematology Association's (EHA) 21st Congress in Copenhagen include a poster presentation of 90-day data from a cohort of patients in the Phase 1/2 study who were taking 700 mg/day of GBT440 and 28-day results from three dosing cohorts of GBT440 (abstract #P371). Data on the pharmacokinetics (PK) and pharmacodynamics (PD) of GBT440 are being highlighted in a separate poster presentation (abstract #P370).

"These new GBT440 clinical data continue to support the hypothesis that GBT440 inhibits sickle hemoglobin (HbS) polymer formation, allowing it to potentially stop red blood cell hemolysis, improve blood flow and transform the treatment of the disease," said Dr. Paul Telfer, consultant in hematology and pediatric hematology at Barts Health NHS Trust and a senior lecturer in hematology at Queen Mary, University of London. "Based on the data we have seen to date, GBT440 has the potential to be a once-daily treatment that could improve the devastating clinical course of sickle cell disease."

"All SCD patients dosed with GBT440 have shown a positive hematologic response. Additionally, a rapid and durable reduction in hemolytic anemia and sickling has been shown over 90 days. We continue to see a linear, dose proportional relationship between pharmacokinetics and pharmacodynamics, and the data continue to support the inhibition of polymerization of sickle hemoglobin through increased oxygen affinity as the mechanism of action of GBT440," said Ted W. Love, M.D., chief executive officer of GBT. "Overall, the data collected to date in study GBT440-001 indicate that we have a drug candidate that we can move into a pivotal trial later this year. We look forward to discussing the design of that trial with the U.S. Food and Drug Administration."

About the Ongoing Phase 1/2 Trial

GBT440-001 is a randomized, placebo-controlled, double-blind, single and multiple ascending dose study evaluating the safety, tolerability, PK and PD of GBT440 in both healthy subjects and patients with SCD. The study is being conducted in three parts: Part A (single dose administration), Part B (multiple dose administration, daily for 15 days in healthy subjects and 28 days in SCD patients) and Part C (multiple dose administration, daily for 90 days in SCD patients). As of June 2, 2016, eight SCD patients completed Part A of the study, 38 SCD patients completed Part B of the study, and 8 patients have either completed Part C of the study or are still being followed (700 mg cohort); the higher dose cohort in Part C (900 mg) is currently enrolling. Of the 46 SCD patients in Parts B and C, 16 patients have completed 700 mg/day dosing for 28 days and follow-up (12 on GBT440, 4 on placebo), 14 patients have completed 500 mg/day dosing for 28 days and follow-up (10 on GBT440, 4 on placebo), 8 patients have completed 1,000 mg/day dosing for 28 days and follow-up (6 on GBT440, 2 on placebo) and 8 patients have completed 700 mg/day dosing for 90 days (6 on GBT440, 2 on placebo).

90-Day Results in GBT440-001 700 mg/day

The new 90-day results with GBT440 700 mg/day (n=6) showed:

- A durable reduction in hemolysis from baseline to day 90, as evidenced by a rapid and sustained reduction in bilirubin starting as early as day 4 and continuing through day 90 (median decrease of greater than 35% compared with an increase of approximately 20% with placebo).
- A median 1.1g/dL increase in hemoglobin concentration was observed with GBT440 treatment compared with 0.2 g/dL decrease with placebo.
- A median decrease of approximately 20% in reticulocyte count compared with an approximately 20% increase with placebo, suggesting that the observed increase in hemoglobin is due to a decrease in hemolysis (red blood cell destruction).
- After initial variability of hemoglobin and reticulocytes during the first 3-6 weeks (likely due to bone marrow adjusting to dramatic reduction in hemolysis), hemoglobin and reticulocyte counts show steady improvement through day 60 to 90.
- A sustained reduction in irreversibly sickled cells, with a median decrease of approximately 70% within 90 days compared

to an increase of approximately 15% with placebo.
- GBT440 was well tolerated over 90 days of dosing. The most common adverse event was headache, seen in both the placebo and GBT440 arms. There have been no drug-related serious adverse events.

28-Day Results in GBT440-001 from Three Dosing Cohorts

The complete 28-day results from three dosing cohorts of GBT440 (500 mg [n=10]), 700 mg [n=12] and 1,000 mg administered as 500 mg BID [n=5]) showed:

- The therapeutic target between 10-30% Hb modification was achieved at GBT440 doses ≥500 mg.
- A consistent beneficial effect was seen in at least one key parameter: hemolysis, reticulocytosis or sickle cell counts.

GBT440 Pharmacokinetic (PK) and Pharmacodynamic (PD) Data

GBT440 demonstrates linear, dose-proportional pharmacokinetics with a half-life of 2.8 and 1.6 days in healthy subjects and SCD patients, respectively. While SCD subjects are right-shifted at baseline, a dose proportional left shift in the P50 to the normal range (26-29 mm Hg) in the oxygen equilibrium curve was observed. Collectively, these data confirm the mechanism of action and pharmacodynamic effect of GBT440 and support once daily dosing.

GBT440-001 Overall Safety Summary

Across the GBT440 clinical development program, GBT440 has now been dosed in 177 adults, including 99 subjects in multiple dosing cohorts up to 90 days. It has been shown to be well tolerated with no drug-related serious adverse events. There has been no evidence of tissue hypoxia in healthy subjects up to approximately 40% Hb modification or in SCD subjects up to approximately 30% Hb modification.

About GBT440

GBT440 is being developed as an oral, once-daily therapy for patients with sickle cell disease. GBT440 works by increasing hemoglobin's affinity for oxygen. Since oxygenated sickle hemoglobin does not polymerize, GBT believes GBT440 blocks polymerization and the resultant sickling of red blood cells (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 (FDA) 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.

Investor Event Webcast Details

Today, Friday, June 10, at 1:30 p.m. CEST/7:30 a.m. ET, members of GBT's management team and distinguished experts Dr. H. Franklin Bunn of Harvard Medical School and Brigham and Women's Hospital, Dr. Paul Telfer of Barts Health NHS Trust and Queen Mary, University of London, and Dr. Wally R. Smith of Virginia Commonwealth University, will review the GBT440 data. The investor event will be webcast live and available for replay from GBT's website at www.globalbloodtx.com in the Investors & Media section.

About Global Blood Therapeutics

Global Blood Therapeutics, Inc. (GBT) is a clinical-stage biopharmaceutical company dedicated to discovering, developing and commercializing novel therapeutics to treat grievous blood-based disorders with significant unmet need. 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 both healthy subjects and SCD patients in a randomized, placebo-controlled, double-blind Phase 1/2 clinical trial. In addition to GBT440 for the treatment of SCD, GBT is engaged in research and development activities targeted toward hypoxemic pulmonary disorders, including idiopathic pulmonary fibrosis (IPF) and hereditary angioedema (HAE). 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 and safety profile of GBT440, our ability to advance GBT440 into a pivotal trial in SCD, our plans to discuss the design of that trial with the U.S. Food and Drug Administration and the timing of these events, 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-new-clinical-data-that-continue-to-support-safety-and-efficacy-profile-of-gbt440-as-a-potentially-disease-modifying-therapy-for-sickle-cell-disease-300282813.html

SOURCE Global Blood Therapeutics, Inc.

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