UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): December 13, 2021

GLOBAL BLOOD THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**001-37539**	**27-4825712**
(State or Other Jurisdiction of Incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)

181 Oyster Point Blvd.
South San Francisco, California 94080
(Address of Principal Executive Offices) (Zip Code)

(650) 741-7700
(Registrant's telephone number, including area code)

Not Applicable
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common Stock, par value $0.001 per share	GBT	The NASDAQ Global Select Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

In this report, "GBT," "Company," "we," "our," and "us" means Global Blood Therapeutics, Inc., and/or one or more of our subsidiaries, unless the context otherwise provides.

Item 8.01. Other Events.

On December 13, 2021, we issued a press release titled “GBT Presents Positive Results from Phase 1 Study of GBT021601 in Patients with Sickle Cell Disease and Healthy Volunteers at ASH Annual Meeting and Exposition.” A copy of the press release is attached as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated herein by reference.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	**Description**
99.1	Press Release, dated December 13, 2021
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Global Blood Therapeutics, Inc.

Date: December 13, 2021

By: /s/ Jeffrey Farrow
Jeffrey Farrow
Chief Financial Officer

EXHIBIT 99.1

GBT Presents Positive Results from Phase 1 Study of GBT021601 in Patients with Sickle Cell Disease and Healthy Volunteers at ASH Annual Meeting and Exposition

GBT601 demonstrated average hemoglobin occupancy of greater than 30% with 100 mg daily doses in a multiple ascending dose study of six adult SCD patients

GBT601 tolerability was favorable in studies of SCD patients and healthy volunteers

Study results provide proof of concept to support the continued development of GBT601

GBT to host investor conference call and webcast today at 12:00 p.m. ET

SOUTH SAN FRANCISCO, Calif., Dec. 13, 2021 (GLOBE NEWSWIRE) -- Global Blood Therapeutics, Inc. (GBT) (NASDAQ: GBT) today announced new data from a Phase 1 study of GBT021601 (GBT601), the company's investigational next-generation sickle hemoglobin (HbS) polymerization inhibitor, that demonstrated average hemoglobin (Hb) occupancy greater than 30% and improvements in hematologic parameters in a cohort of six patients with sickle cell disease (SCD) receiving multiple ascending doses (MAD) of GBT601. The study also showed that single ascending doses (SAD) and MAD of GBT601 were well tolerated in both healthy volunteers and SCD patients. These data are being presented today (Poster #3099) during the 63rd American Society of Hematology (ASH) Annual Meeting and Exposition in Atlanta, Georgia and online.

"These Phase 1 data of GBT601 are very encouraging and demonstrate that in sickle cell disease patients we can achieve a high target hemoglobin occupancy at daily doses lower than 500 mg, while maintaining a favorable safety and tolerability profile. Therefore, GBT601 has the potential to improve clinical outcomes in people living with SCD, while reducing pill burden," said Clark Brown, M.D., Ph.D., director of sickle cell clinical research at the Aflac Cancer and Blood Disorders Center of Children's Healthcare of Atlanta and lead investigator of the study. "I'm very excited to continue to study GBT601 in more patients and with longer follow up to seek to confirm the potential for GBT601 as a potent, well-tolerated disease-modifying therapy for sickle cell patients in a once-daily pill."

Discovered and designed by GBT's research team, GBT601 has the same mechanism of action as Oxbryta® (voxelotor) tablets, which is the first FDA-approved medicine that directly targets HbS polymerization, the root cause of the sickling and destruction of red blood cells in SCD. GBT601 is a unique molecular entity with its own intellectual property. With these Phase 1 data, GBT believes GBT601 has shown the potential for greater response than Oxbryta by achieving higher Hb levels and occupancy at lower doses. In prior research in an *in vivo* SCD mouse model, GBT601 treatment led to substantial improvements in hematological parameters.[1]

Single and Multiple Ascending Doses of GBT601 in Adult SCD Patients
Six adult patients with SCD (HbSS genotype) were studied in a single-arm, intra-patient single-dose and MAD trial to evaluate the safety and tolerability of GBT601. Patients were given a single dose of 100 mg during the SAD portion of the study and then, following a washout period of eight weeks, during the MAD portion of the study patients received a loading dose of 300 mg on day one and a 200 mg loading dose on day two, followed by a daily maintenance dose of 50 mg for five weeks (MAD-1). This was immediately followed by the second MAD phase, with patients receiving a loading dose of 500 mg on the first day and a 400 mg loading dose the next day, followed by a daily maintenance dose of 100 mg for three weeks (MAD-2). The primary endpoint of the study was safety and tolerability and key secondary endpoints included pharmacokinetics (PK) and pharmacodynamic (PD) and hematological parameters.

GBT601 demonstrated a favorable tolerability profile in both the SAD and MAD phases. In the study overall, the majority of treatment-emergent adverse events (TEAEs) were grade 1 or 2 and not related to GBT601. There were three TEAEs reported that were related to GBT601 – one case of grade 2 headache and two cases of grade 1 diarrhea. In addition, in the MAD phases, a total of three vaso-occlusive crises (VOCs) occurred in two patients, grades 2, 3 and 4 – all deemed unrelated to GBT601. No TEAEs led to study discontinuation.

At study completion (16 weeks), Hb occupancy averaged 32.6% (range 19.7% to 41.8%) and Hb levels increased by up to 3.1 g/dL (mean increase of 2.3 g/dL). During study treatment, all patients demonstrated improvements in hematologic parameters, including reticulocytes and absolute reticulocytes, lactate dehydrogenase (LDH) and indirect bilirubin. In addition, improvements in red blood cell health were seen in all patients as assessed by Oxygenscan testing.

GBT believes these Phase 1 study results provide proof of concept that a low dose of GBT601 in a once-daily pill should achieve high target Hb occupancies. Incorporation of these data into GBT's PK model predicts that even higher Hb occupancies can be achieved at relatively low doses, thus enabling GBT's further clinical development of this next generation HbS polymerization inhibitor.

"These are the first published results of GBT601 in people living with sickle cell disease and represent an important milestone to potentially establish this innovative investigational therapy as a functional cure in a once-daily pill. As such, we believe that treatment with GBT601 has the potential to be able to improve key lab measures and make sickle cell disease look like sickle cell trait. Most importantly, this is an important step on our continuing journey to bring more transformative therapeutic options to as many SCD patients as possible," said Ted W. Love, M.D., president and chief executive officer of GBT. "We very much look

forward to continuing the rapid advancement of our clinical development of GBT601 as we advance our work to transform SCD into a benign, well managed condition."

Multiple Ascending Doses of GBT601 in Healthy Volunteers
Ten adult healthy volunteers were randomized to receive GBT601 (at a 300 mg loading dose for three days followed by a 15 mg daily maintenance dose for 11 days) or placebo over a 14-day period. GBT601 was well tolerated in all subjects. Average Hb occupancy at this 15 mg dose was 16.0% at day 14.

An Oxbryta dose greater than 300 mg was needed to achieve a similar occupancy in the equivalent Oxbryta healthy volunteer study.[2] This GBT601 healthy volunteer study is enrolling additional cohorts of 10 healthy volunteers with a higher daily maintenance dose.

Single Ascending Doses of GBT601 in Healthy Volunteers
Preliminary single-dose data of GBT601 in healthy volunteers showed a linear dose-dependent increase in percent Hb occupancy up to the highest dose evaluated, 2,200 mg. From single doses of 50 to 2,200 mg, the mean preliminary Hb occupancy ranged from 0.88 to 43.9%, respectively, exceeding the Hb occupancies reported for healthy volunteers receiving single doses of Oxbryta over a similar range. GBT601 showed linear PK, high partitioning into red blood cells, and a dose-dependent increase in percent Hb occupancy in healthy volunteers, and single ascending doses were well tolerated. Most adverse events were grade 1 or 2, with none indicative of tissue hypoxia.

Conference Call and Webcast Today at 12:00 p.m. ET
GBT will host a conference call for the investment community today, Monday, December 13, 2021 at 12:00 pm ET to discuss new data on its sickle cell programs presented at the ASH Annual Meeting. A live webcast including presentation slides can be accessed on GBT's website at www.gbt.com in the Investors section. The archived webcast will be available for three months following the event. To participate in the conference call, please dial (877) 407-3982 (domestic) or +1 (201) 493-6780 (international).

About Sickle Cell Disease
Sickle cell disease (SCD) affects more than 100,000 people in the United States,[3] an estimated 52,000 people in Europe,[4] and millions of people throughout the world, particularly among those whose ancestors are from sub-Saharan Africa.[5] It also affects people of Hispanic, South Asian, Southern European and Middle Eastern ancestry.[5] Complications of SCD begin in early childhood and can include neurocognitive impairment, acute chest syndrome, and silent and overt stroke, among other serious issues.[6] SCD is a lifelong inherited rare blood disorder that impacts hemoglobin, a protein carried by red blood cells that delivers oxygen to tissues and organs throughout the body.[7] Due to a genetic mutation, individuals with SCD form abnormal hemoglobin known as sickle hemoglobin. Through a process called hemoglobin polymerization, red blood cells become sickled – deoxygenated, crescent-shaped and rigid.[7-9] The sickling process causes hemolytic anemia (low hemoglobin due to red blood cell destruction) and blockages in capillaries and small blood vessels, which impede the flow of blood and oxygen throughout the body. The diminished oxygen delivery to tissues and organs can lead to life-threatening complications, including stroke and irreversible organ damage.[8-11]

About Oxbryta® (voxelotor) Tablets
Oxbryta (voxelotor) is an oral, once-daily therapy for patients with sickle cell disease (SCD). Oxbryta works by increasing hemoglobin's affinity for oxygen. Since oxygenated sickle hemoglobin does not polymerize, Oxbryta inhibits sickle hemoglobin polymerization and the resultant sickling and destruction of red blood cells, which are primary pathologies faced by every single person living with SCD. Through addressing hemolytic anemia and improving oxygen delivery throughout the body, GBT believes that Oxbryta has the potential to modify the course of SCD. In November 2019, the U.S. Food and Drug Administration (FDA) granted accelerated approval for Oxbryta tablets for the treatment of SCD in adults and children 12 years of age and older.[12]

As a condition of accelerated approval, GBT will continue to study Oxbryta in the HOPE-KIDS 2 Study, a post-approval confirmatory study using transcranial Doppler (TCD) flow velocity to assess the ability of the therapy to decrease stroke risk in children 2 to 14 years of age.

In recognition of the critical need for new SCD treatments, the FDA granted Oxbryta Breakthrough Therapy, Fast Track, Orphan Drug, and Rare Pediatric Disease designations for the treatment of patients with SCD. Additionally, Oxbryta was granted Priority Medicines (PRIME) designation from the European Medicines Agency (EMA), Oxbryta was designated by the European Commission (EC) as an orphan medicinal product for the treatment of patients with SCD, and Oxbryta was granted Promising Innovative Medicine (PIM) designation in the United Kingdom from the Medicines and Healthcare products Regulatory Agency (MHRA).

The EMA has accepted for review GBT's Marketing Authorization Application (MAA) seeking full marketing authorization of Oxbryta in Europe to treat hemolytic anemia in SCD patients ages 12 years and older. GBT is also seeking regulatory approval to expand the potential use of Oxbryta in the United States for the treatment of SCD in children as young as 4 years old. The Ministry of Health and Prevention (MOHAP) in the United Arab Emirates (UAE) has granted marketing authorization for Oxbryta for the treatment of SCD in adults and children 12 years of age and older.

Important Safety Information
Oxbryta should not be taken if the patient has had an allergic reaction to voxelotor or any of the ingredients in Oxbryta. See the end of the patient leaflet for a list of the ingredients in Oxbryta.

Oxbryta can cause serious side effects, including serious allergic reactions. Patients should tell their healthcare provider or get emergency medical help right away if they get rash, hives, shortness of breath, or swelling of the face.

Patients receiving exchange transfusions should talk to their healthcare provider about possible difficulties with the interpretation of certain blood tests when taking Oxbryta.

The most common side effects of Oxbryta include headache, diarrhea, stomach (abdominal) pain, nausea, tiredness, rash and fever. These are not all the possible side effects of Oxbryta.

Before taking Oxbryta, patients should tell their healthcare provider about all medical conditions, including if they have liver problems; if they are pregnant or plan to become pregnant as it is not known if Oxbryta can harm an unborn baby; or if they are breastfeeding or plan to breastfeed as it is not known if Oxbryta can pass into breastmilk or if it can harm a baby. Patients should not breastfeed during treatment with Oxbryta and for at least two weeks after the last dose.

Patients should tell their healthcare provider about all the medicines they take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. Some medicines may affect how Oxbryta works. Oxbryta may also affect how other medicines work.

Patients are advised to call their doctor for medical advice about side effects. Side effects can be reported to the FDA at 1-800-FDA-1088. Side effects can also be reported to Global Blood Therapeutics at 1-833-428-4968 (1-833-GBT-4YOU).

Full Prescribing Information for Oxbryta is available at Oxbryta.com.

About Global Blood Therapeutics
Global Blood Therapeutics, Inc. (GBT) is a biopharmaceutical company dedicated to the discovery, development and delivery of life-changing treatments that provide hope to underserved patient communities. Founded in 2011, GBT is delivering on its goal to transform the treatment and care of sickle cell disease (SCD), a lifelong, devastating inherited blood disorder. The company has introduced Oxbryta® (voxelotor) tablets, the first FDA-approved medicine that directly inhibits sickle hemoglobin polymerization, the root cause of red blood cell sickling in SCD. GBT is also advancing its pipeline program in SCD with inclacumab, a P-selectin inhibitor in Phase 3 development to address pain crises associated with the disease, and GBT021601 (GBT601), the company's next-generation hemoglobin S polymerization inhibitor. In addition, GBT's drug discovery teams are working on new targets to develop the next wave of potential treatments for SCD. To learn more, please visit www.gbt.com and follow the company on Twitter @GBT_news.

Forward-Looking Statements
Certain statements in this press release are forward-looking within the meaning of the Private Securities Litigation Reform Act of 1995, including statements containing the words "will," "anticipates," "plans," "believes," "forecast," "estimates," "expects" and "intends," or similar expressions. These forward-looking statements are based on GBT's current expectations and actual results could differ materially. Statements 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. GBT intends these forward-looking statements, including statements regarding GBT's priorities, dedication, commitment, focus, goals, mission and vision; safety, efficacy and mechanism of action of Oxbryta and other product characteristics; significance of reducing sickling and hemolysis and raising hemoglobin; commercialization, delivery, availability, use and commercial and medical potential of Oxbryta; significance of GBT601 study results, including providing proof of concept and demonstrating clinical and therapeutic potential; the potential and continued development of GBT601, including related expectations, activities and timing; ongoing and planned studies, clinical trials and registries, and related protocols, activities, timing and other expectations; regulatory submissions to potentially expand the approved use of Oxbryta for more patients and in a pediatric formulation in the U.S. and to treat patients in Europe and other territories, including potential regulatory review, timing and approval; altering the treatment, course and care of SCD and mitigating related complications; safety, efficacy, mechanism of action, advancement and potential of GBT's drug candidates and pipeline; and working on new targets and discovering, developing and delivering treatments, 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 GBT makes this statement for purposes of complying with those safe harbor provisions. These forward-looking statements reflect GBT's current views about its plans, intentions, expectations, strategies and prospects, which are based on the information currently available to the company and on assumptions the company has made. GBT 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 GBT's control, including, without limitation, risks and uncertainties relating to the COVID-19 pandemic, including the extent and duration of the impact on GBT's business, including commercialization activities, regulatory efforts, research and development, corporate development activities and operating results, which will depend on future developments that are highly uncertain and cannot be accurately predicted, such as the ultimate duration of the pandemic, travel restrictions, quarantines, social distancing and business closure requirements in the U.S. and in other countries, and the effectiveness of actions taken globally to contain and treat the disease; the risks that GBT is continuing to establish its commercialization capabilities and may not be able to successfully commercialize Oxbryta; risks associated with GBT's dependence on third parties for research, development, manufacture, distribution and commercialization activities; government and third-party payer actions, including those relating to

reimbursement and pricing; risks and uncertainties relating to competitive treatments and other changes that may limit demand for Oxbryta; the risks regulatory authorities may require additional studies or data to support continued commercialization of Oxbryta; the risks that drug-related adverse events may be observed during commercialization or clinical development; data and results may not meet regulatory requirements or otherwise be sufficient for further development, regulatory review or approval; compliance with obligations under the Pharmakon loan; and the timing and progress of activities under GBT's collaboration, license and distribution agreements; along with those risks set forth in GBT's Annual Report on Form 10-K for the fiscal year ended December 31, 2020, and in GBT's most recent Quarterly Report on Form 10-Q filed with the U.S. Securities and Exchange Commission, as well as discussions of potential risks, uncertainties and other important factors in GBT's subsequent filings with the U.S. Securities and Exchange Commission. Except as required by law, GBT assumes no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

References

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