PhaseBio Pharmaceuticals, Inc. Logo

# PhaseBio Announces European Regulatory Update for PB2452

February 11, 2020

*PB2452 granted PRIME Designation by the European Medicines Agency*

*PhaseBio receives written scientific advice confirming PB2452 clinical development plan*

*In Phase 1 and Phase 2a clinical trials, PB2452 provided immediate and sustained reversal of the antiplatelet effects of ticagrelor*

MALVERN, Pa. and SAN DIEGO, Feb. 11, 2020 (GLOBE NEWSWIRE) -- PhaseBio Pharmaceuticals, Inc. (Nasdaq: PHAS), a clinical-stage biopharmaceutical company focused on the development and commercialization of novel therapies for cardiopulmonary diseases, today announced that PB2452 has been granted PRIority MEdicines (PRIME) designation by the European Medicines Agency (EMA) for reversal of the antiplatelet effects of ticagrelor in patients with uncontrolled major or life-threatening bleeding or requiring urgent surgery or an invasive procedure. Additionally, PhaseBio announced receipt of written guidance from the Committee for Medicinal Products for Human Use (CHMP) of the EMA that generally agrees with PhaseBio's proposed development plan for PB2452. After reviewing the Scientific Advice from CHMP and based on prior interactions with the U.S. Food and Drug Administration (FDA), PhaseBio believes that the development plan for PB2452 has been designed to support regulatory filings in the United States and the European Union. Specifically, based on the written guidance, CHMP appears aligned with PhaseBio's plan to conduct a non-randomized, open-label Phase 3 trial of major bleeding and urgent surgical populations to support a Marketing Authorization Application (MAA) for PB2452.

John Lee, M.D., Ph.D., the Chief Medical Officer of PhaseBio, said, "We are extremely pleased that the EMA recognizes the potential of PB2452 to help address a significant unmet medical need by granting PRIME designation to PB2452 and generally agreeing to our overall development plan in support of an EU MAA submission. Building on the Breakthrough Therapy Designation for PB2452 granted by the FDA in April 2019, we believe that EMA PRIME designation, coupled with the written Scientific Advice we recently received from CHMP, further validates the potential of our streamlined development program. We are committed to working closely with regulatory agencies to make PB2452 available to patients and care providers as quickly as possible."

PB2452 Granted PRIME Designation

PRIME designation is granted by the EMA to enhance support for the development of medicines that demonstrate the potential to address substantial unmet medical need based on early clinical data. The EMA prioritizes PRIME designated drugs for special support, including enhanced interactions and dialogue with EMA during development, as well as a pathway for accelerated evaluation and review for marketing authorization. The program is intended to optimize development plans and potentially expedite the review and approval process so that these medicines may reach patients as early as possible.

In its review comments for PRIME designation, EMA recognized the unmet need for an effective reversal agent for ticagrelor-induced platelet inhibition. EMA acknowledged that, while infrequent, ticagrelor-related major bleeding events are associated with relevant morbidity and mortality. Urgent surgical interventions (such as coronary artery bypass grafting) that cannot be delayed to allow full washout of ticagrelor are associated with an increased risk for intra- and post-procedural bleeding events. EMA also acknowledged that there are no established effective treatment options to reverse ticagrelor-induced platelet inhibition.

EMA further agreed that the preliminary clinical data provided in the application suggested that PB2452 is likely to be able to address, to a significant extent, the targeted unmet medical need. As the basis of the application, EMA reviewed PB2452 clinical trial results from the recently completed Phase 2a study, which demonstrated immediate and sustained reversal of the antiplatelet effects of ticagrelor in older and elderly patients treated with dual antiplatelet therapy (low-dose aspirin and ticagrelor) and in healthy subjects treated with supratherapeutic doses of ticagrelor. The clinical data corroborated non-clinical findings that were also reviewed, which demonstrated selective, high-affinity binding of PB2452 to ticagrelor and its active metabolite and its potential to provide rapid reversal of ticagrelor. Additionally, EMA cited literature evidence indicating that the platelet-function assays utilized in the PB2452 development program are likely to be predictive of clinical outcomes in cardiovascular patients.

Scientific Advice Regarding the PB2452 Development Program

Separately, PhaseBio met with the Scientific Advice Working Party (SAWP) of CHMP to discuss the acceptability of the overall development program to support an MAA for PB2452. PhaseBio has concluded these interactions and has now received written guidance from the CHMP.

With respect to the clinical development program, CHMP generally agreed with PhaseBio's plan to conduct a single-arm, open-label, pivotal clinical study of PB2452 in the target population of patients on ticagrelor who experience a major bleeding event or are in need of an urgent surgical procedure. Regarding the overall number of patients targeted to participate in the Phase 3 trial, CHMP agreed with PhaseBio's proposal to conduct the trial in a total of 200 patients, with results from the first 100 patients expected to be included in the MAA package seeking conditional marketing authorization (CMA). CHMP also agreed with PhaseBio's proposed use of the VerifyNow PRUTest® biomarker as the primary endpoint for the Phase 3 trial. PhaseBio has used VerifyNow PRUTest in its Phase 1 and Phase 2a clinical trials, where it demonstrated a high degree of correlation with other biomarkers used to measure platelet function.

**About PB2452**

PB2452 is a novel, recombinant, human monoclonal antibody antigen-binding fragment designed to reverse the antiplatelet activity of ticagrelor in major bleeding and urgent surgery situations. In a Phase 1 clinical trial, PB2452 demonstrated the potential to bring life-saving therapeutic benefit through immediate and sustained reversal of ticagrelor's antiplatelet activity, mitigating concerns regarding bleeding risks associated with the use of antiplatelet drugs. The Phase 1 clinical trial of PB2452 in healthy volunteers was published in the *New England Journal of Medicine* in March 2019.[1] In April 2019, PB2452 received Breakthrough Therapy designation from the FDA. Breakthrough Therapy designation may be granted by FDA when preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapy. PhaseBio plans to initiate a single pivotal Phase 3 clinical trial of PB2452 in the first quarter of 2020 to support a Biologics License Application for PB2452 in both major bleeding

and urgent surgery indications. There are currently no approved reversal agents for ticagrelor or any other antiplatelet drugs.

**About PhaseBio**

PhaseBio Pharmaceuticals, Inc. is a clinical-stage biopharmaceutical company focused on the development and commercialization of novel therapies for cardiopulmonary diseases. The company's pipeline includes: PB2452, a novel reversal agent for the antiplatelet therapy ticagrelor; PB1046, a once-weekly vasoactive intestinal peptide receptor agonist for the treatment of pulmonary arterial hypertension; and PB6440, an oral agent for the treatment of resistant hypertension. PhaseBio's proprietary elastin-like-polypeptide technology platform enables the development of therapies with potential for less-frequent dosing and improved pharmacokinetics, including PB1046, and drives both internal and partnership drug development opportunities.

PhaseBio is located in Malvern, PA and San Diego, CA. For more information, please visit www.phasebio.com.

**Forward-Looking Statements**

*This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "anticipates," "believes," "expects," "intends," "projects," and "future" or similar expressions are intended to identify forward-looking statements.*

*Forward-looking statements include statements concerning or implying the conduct or timing of our clinical trials and our research, development and regulatory plans for PB2452, the potential for PB2452 to receive regulatory approval from the FDA or equivalent foreign regulatory agencies, and whether, if approved, PB2452 will be successfully distributed and marketed. Forward-looking statements are based on management's current expectations and are subject to various risks and uncertainties that could cause actual results to differ materially and adversely from those expressed or implied by such forward-looking statements. Accordingly, these forward-looking statements do not constitute guarantees of future performance, and you are cautioned not to place undue reliance on these forward-looking statements.*

*Risks regarding our business are described in detail in our Securities and Exchange Commission filings, including in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2019. These forward-looking statements speak only as of the date hereof, and PhaseBio Pharmaceuticals, Inc. disclaims any obligation to update these statements except as may be required by law.*

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[1] Bhatt DL, Pollack CV, Weitz JI, et al. Antibody-Based Ticagrelor Reversal Agent in Healthy Volunteers. N Engl J Med 2019; 380:1825-1833

Source: PhaseBio Pharmaceuticals, Inc.