



Imara Presents Positive Interim Results from Phase 2a Study of IMR-687 in Sickle Cell Disease at the Virtual European Hematology Association Annual Congress

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Showed statistically significant increase in red blood cells containing fetal hemoglobin (F-cells) and dose-dependent increase in fetal hemoglobin percentage in high-dose group after 24 weeks of monotherapy

IMR-687 was well tolerated as a monotherapy and in combination with hydroxyurea

BOSTON, June 12, 2020 (GLOBE NEWSWIRE) -- Imara Inc. (Nasdaq: IMRA), a clinical-stage biopharmaceutical company dedicated to developing and commercializing novel therapeutics to treat patients suffering from rare inherited genetic disorders of hemoglobin, today presented interim results from its ongoing Phase 2a clinical trial of IMR-687 in adult patients with sickle cell disease (SCD) at the 25th European Hematology Association (EHA) Annual Congress.

The data from this ongoing study demonstrated that IMR-687, an oral, once-a-day, potentially disease modifying treatment, was safe and well tolerated as a monotherapy and in combination with hydroxyurea (HU). In the higher dose cohort, IMR-687 monotherapy showed a statistically significant ($p=0.022$) increase in the number of F-cells, which are red blood cells containing fetal hemoglobin (HbF), as well as a dose-dependent increase in HbF levels in adult patients with SCD.

"These second interim data presented at EHA help reinforce the potential of IMR-687 as a novel, potentially disease modifying approach in the treatment of rare blood disorders, including sickle cell disease," said Rahul Ballal, Ph.D., President and Chief Executive Officer of Imara. "We know increasing fetal hemoglobin correlates with improved clinical outcomes, and these promising Phase 2a data, which include early trends in reducing painful vaso-occlusive crises, continue to give us confidence that IMR-687 could have a meaningful impact in treating sickle cell disease. We also believe the once-a-day oral format of IMR-687 could be advantageous as we address the global prevalence of sickle cell disease."

"Based on these results and following a Type B meeting with the FDA in January, Imara is initiating a Phase 2b clinical trial in adult patients with sickle cell disease to test higher doses of IMR-687 for up to a one-year duration of therapy. We anticipate this increased exposure and duration may result in further increases in HbF and, in turn, result in improved clinical outcomes for patients," commented Dr. Ballal.

"Current treatment options for patients with sickle cell disease are associated with a number of limitations, including safety concerns and variable response rates," said Biree Andemariam, M.D., Associate Professor at UConn School of Medicine and Director of the New England Sickle Cell Institute at UConn Health, and lead investigator for the trial. "Selective inhibition of phosphodiesterase-9 with IMR-687 shows an increase in fetal hemoglobin and F-cells and IMR-687 was generally well tolerated as a monotherapy or in combination with HU. Thus, IMR-687 has the potential to offer an effective and differentiated oral therapeutic option for patients with sickle cell disease."

This pre-specified protocol-driven interim analysis was triggered when at least 18 patients completed 24 weeks of dosing in the monotherapy cohort of the trial. All evaluable patient data at the time of the interim analysis were included in addition to those who had completed the 24 weeks of dosing in the monotherapy cohort, resulting in data from 37 patients in the monotherapy cohort and 20 patients from the combination cohort.

Treatment with monotherapy IMR-687 was associated with statistically significant ($p=0.022$) increases in F-cells in the 100 mg / 200 mg dose group compared to placebo after 24 weeks of dosing, with a relative increase in F-cell percentage of 18.1%, representing a mean increase from baseline through week 24 of approximately 155%. We also observed a mean increase in HbF percentage in the 100 mg / 200 mg dose group of 1.7% from baseline through week 24, representing a mean increase of approximately 38%. The increases in both F-cells and HbF were dose dependent in the monotherapy arm. The combination cohort was designed to be a low-dose short duration study and there was no observed reduction in HU pharmacokinetics when combined with IMR-687. From a safety standpoint, IMR-687 was well tolerated, with a higher incidence of reversible mild-to-moderate GI adverse events observed in the higher doses of monotherapy cohort (100 mg / 200 mg). There was no hypotension or neutropenia observed in either the monotherapy or combination arms and fewer patients reported vaso-occlusive crises in the active treatment arms versus placebo or background HU.

The EHA presentation, titled "IMR-687, A Highly Selective Phosphodiesterase 9 Inhibitor (PDE9I), Increases F-Cells and Fetal Hemoglobin in a Ph-2A Interim Analysis," is available for registered attendees of the virtual EHA annual congress through October. The presentation can also be found at the Investors section of Imara's website.

About the Phase 2a Clinical Trial

The Phase 2a clinical trial is a randomized, double-blind, placebo-controlled trial in adult patients with SCD and was designed to evaluate the safety, pharmacokinetics and pharmacodynamics of escalating doses of IMR-687 administered once daily for 16 to 24 weeks. The trial follows a titrated dose design. Patients in the monotherapy arm initially received IMR-687 at doses of 50 mg or 100 mg through 12 weeks and then higher doses of 100 mg or 200 mg, respectively, through 24 weeks. Patients in the combination arm initially received IMR-687 at 50 mg on top of a stable dose of HU, with escalation after one month to 100 mg for the remaining portion of the trial. The Phase 2a trial protocol was subsequently amended for the monotherapy and combination arms to increase duration at the high dose; however, data included in this interim analysis did not include any patients dosed under the amended protocol. The amended protocol results will be announced alongside the full Phase 2a results, which are expected in the fourth quarter of 2020.

About IMR-687

IMR-687 is a highly selective and potent small molecule inhibitor of PDE9. PDE9 uniquely degrades cyclic guanosine monophosphate (cGMP), an active signaling molecule that plays a role in vascular biology. Lower levels of cGMP are often found in people with sickle cell disease and

beta-thalassemia and are associated with impaired blood flow, increased inflammation, greater cell adhesion and reduced nitric oxide mediated vasodilation.

Blocking PDE9 acts to increase cGMP levels, which are associated with reactivation of fetal hemoglobin, or HbF, a natural hemoglobin produced during fetal development. Increased levels of HbF in red blood cells have been demonstrated to improve symptomology and substantially lower disease burden in both patients with sickle cell disease and patients with beta-thalassemia.

About Imara

Imara Inc. is a clinical-stage biotechnology company dedicated to developing and commercializing novel therapeutics to treat patients suffering from rare inherited genetic disorders of hemoglobin. Imara is currently advancing IMR-687, a highly selective, potent small molecule inhibitor of PDE9 that is an oral, once-a-day, potentially disease-modifying treatment for sickle cell disease and beta-thalassemia. IMR-687 is being designed to have a multimodal mechanism of action that acts on red blood cells, white blood cells, adhesion mediators and other cell types. For more information, please visit www.imaratx.com.

Cautionary Note Regarding Forward-Looking Statements

Statements in this press release about future expectations, plans and prospects, as well as any other statements regarding matters that are not historical facts, may constitute "forward-looking statements" within the meaning of The Private Securities Litigation Reform Act of 1995. These statements include, but are not limited to, statements made by Dr. Ballal and Dr. Andemariam in this press release and statements relating to (i) the timing for reporting of top-line data from the ongoing Phase 2a clinical trial evaluating IMR-687 in patients with sickle cell disease (ii) the timing and design of the Company's Phase 2b clinical trial evaluating IMR-687 in patients with sickle cell disease and (iii) the Company's beliefs regarding the strength of its clinical data, the therapeutic potential of IMR-687 and advancement of its clinical program. The words "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "will," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including: the impact of extraordinary external events, such as the risks and uncertainties resulting from the impact of the COVID-19 pandemic on the Company's business, operations, strategy, goals and anticipated milestones, including its ability to conduct and readout top-line data from its ongoing Phase 2a clinical trial of IMR-687 in sickle cell disease and its ability to enroll, dose and readout data from its Phase 2b clinical trial of IMR-687 in sickle cell disease; the Company's ability to advance the development of IMR-687 under the timelines it projects in current and future clinical trials, demonstrate in any current and future clinical trials the requisite safety and efficacy of IMR-687, replicate scientific and non-clinical data in clinical trials, obtain and maintain necessary regulatory approvals, obtain, maintain and enforce necessary patent and other intellectual property protection, identify, enter into and maintain collaboration agreements with third parties, manage competition, manage expenses, raise the substantial additional capital needed to achieve its business objectives, attract and retain qualified personnel, and successfully execute on its business strategies; and other factors discussed in the "Risk Factors" section of the Company's most recent Quarterly Report on Form 10-Q, which is on file with the Securities and Exchange Commission and in other filings that the Company makes with the Securities and Exchange Commission in the future. Any forward-looking statements contained in this press release speak only as of the date hereof, and the Company expressly disclaims any obligation to update any forward-looking statement, whether as a result of new information, future events or otherwise.

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