BioMarin Receives Positive CHMP Opinion in Europe for Valoctocogene Roxaparvovec Gene Therapy to Treat Adults with Severe Hemophilia A

European Commission Approval Expected Q3 2022

1st Gene Therapy for Treatment of Hemophilia A Recommended for Approval inEurope

More than 20,000 Adults with Severe Hemophilia A in BioMarin Territories Across Europe, the Middle East and Africa

Conference Call Scheduled for Friday, June 24 at 11 a.m. ET

SAN RAFAEL, Calif., June 24, 2022 /PRNewswire/ -- BioMarin Pharmaceutical Inc. (NASDAQ: BMRN) announced today that the Committee for Medicinal Products for Human Use (CHMP) has adopted a positive opinion recommending conditional marketing authorization (CMA) for its investigational gene therapy, valoctocogene roxaparvovec, for adults with severe hemophilia A. A final approval decision, typically consistent with the CHMP recommendation, is expected from the European Commission in Q3 2022.

The one-time infusion is planned to be marketed under the brand name ROCTAVIAN™ (valoctocogene roxaparvovec), for the treatment of severe hemophilia A (congenital factor VIII deficiency) in adult patients without a history of factor VIII inhibitors and without detectable antibodies to adeno-associated virus serotype 5 (AAV5). Roctavian is the first gene therapy to be recommended for approval in Europe for hemophilia A.

It is estimated that more than 20,000 adults across Europe, Middle East, and Africa are affected by severe hemophilia A. BioMarin anticipates additional patient access through named patient sales based on an EMA approval in countries in the Middle East and Africa and expects additional market registrations to be facilitated by an anticipated EMA license.

"Today's positive CHMP opinion for Roctavian addresses the unmet medical needs in severe hemophilia A by providing a treatment option that has been shown in clinical studies can maintain effective levels of endogenously produced coagulation Factor VIII over multiple years with a single intravenous administration. Currently available treatment options require long-term, chronic use with a high degree of compliance to a prescribed schedule to be effective," said Hank Fuchs, M.D., President of Worldwide

Research and Development at BioMarin. "We are grateful to the patients, investigators and community who have been an integral part in reaching this important milestone that brings us one step closer to delivering on the promise and ingenuity of gene therapy. We are proud of this scientific accomplishment and committed to the ongoing study of Roctavian."

"The positive CHMP opinion offers hope for a new treatment option for people with severe hemophilia A, who have been bound to lifelong treatment and still experience serious health complications, such as breakthrough bleeding, pain, and joint damage, as well as having to constantly consider their condition in all aspects of their lives," said Professor Johannes Oldenburg, Director of the Institute of Experimental Haematology and Transfusion Medicine and the Haemophilia Centre at the University Clinic in Bonn, Germany. "The robust data set from the clinical trial program underscores the potential impact of gene therapy for patients, including a substantial and sustained reduction in bleeding that would have previously required Factor VIII infusions."

People with hemophilia A have a mutation or irregularity in the gene responsible for producing Factor VIII (FVIII), a protein necessary for blood clotting. The standard of care for patients with severe hemophilia A is chronic lifelong injectable therapy to maintain enough clotting factor in the bloodstream to prevent bleeds. Investigational valoctocogene roxaparvovec gene therapy works by delivering a functional gene that is designed to enable the body to produce FVIII on its own with the goal of reducing the need for ongoing prophylaxis.

The CHMP based its positive opinion on the totality of data from the valoctocogene roxaparvovec clinical development program, the most extensively studied gene therapy for hemophilia A, including two-year outcomes from the global GENEr8-1 Phase 3 study, supported by five and four years of follow-up from the 6e13 vg/kg and 4e13 vg/kg dose cohorts respectively, in the ongoing Phase 1/2 dose escalation study. BioMarin has committed to continue working with the broader community to monitor the long-term effects of treatment.

The CHMP is a scientific committee composed of representatives from the 27-member states of the EU, and Iceland, Norway, and Liechtenstein. The committee reviews medical product applications on its scientific and clinical merit and provides advice to the European Commission (EC), which has the authority to approve medicines for the EU.

A conditional marketing authorization (CMA) recognizes that benefit to public health of the immediate availability on the market outweighs the uncertainties inherent to the fact

that the science is still new, as is the case with any gene therapy, and the fact that additional data are still required. Once a CMA has been granted by EMA, BioMarin will provide further data from ongoing studies within defined timelines to confirm that the benefits continue to outweigh the risks, building on what already constitutes the largest clinical data package for gene therapy in hemophilia A. Conversion to a standard marketing authorization will be contingent on the provision of additional data from currently ongoing Roctavian clinical studies, including longer-term follow up of patients enrolled in the pivotal trial GENEr8-1, as well as a study of corticosteroids for which enrollment is now complete. The final summary of product characteristics will be available when the product is approved by the European Commission.

Robust Clinical Program

BioMarin has multiple clinical studies underway in its comprehensive gene therapy program for the treatment of hemophilia A. In addition to the global Phase 3 study GENEr8-1 and the ongoing Phase 1/2 dose escalation study, the Company is also conducting a Phase 3B, single arm, open-label study to evaluate the efficacy and safety of valoctocogene roxaparvovec at a dose of 6e13 vg/kg with prophylactic corticosteroids in people with hemophilia A (Study 270-303). In addition, the Company is running a Phase 1/2 Study with the 6e13 vg/kg dose of valoctocogene roxaparvovec in people with hemophilia A with pre-existing AAV5 antibodies (Study 270-203), as well as another Phase 1/2 Study with the 6e13 vg/kg dose of valoctocogene roxaparvovec in people with hemophilia A with active or prior FVIII inhibitors (Study 270-205).

Safety Summary

Overall, single 6e13 vg/kg dose of valoctocogene roxaparvovec has been well tolerated with no delayed-onset treatment related adverse events. The most common adverse events (AE) associated with valoctocogene roxaparvovec occurred early and included transient infusion associated reactions and mild to moderate rise in liver enzymes with no long-lasting clinical sequelae. Alanine aminotransferase (ALT) elevation (113 participants, 80%), a laboratory test of liver function, remained the most common adverse drug reaction. Other adverse reactions included aspartate aminotransferase (AST) elevation (95 participants, 67%), nausea (52 participants, 37%), headache (50 participants, 36 %), and fatigue (42 participants, 30%). No participants developed inhibitors to Factor VIII, thromboembolic events or malignancy associated with valoctocogene roxaparvovec have been reported.

About Hemophilia A

People living with hemophilia A lack sufficient functioning Factor VIII protein to help their blood clot and are at risk for painful and/or potentially life-threatening bleeds from even modest injuries. Additionally, people with the most severe form of hemophilia A (FVIII levels <1%) often experience painful, spontaneous bleeds into their muscles or joints. Individuals with the most severe form of hemophilia A make up approximately 50 percent of the hemophilia A population. People with hemophilia A with moderate (FVIII 1-5%) or mild (FVIII 5-40%) disease show a much-reduced propensity to bleed. The standard of care for individuals with severe hemophilia A is a prophylactic regimen of replacement Factor VIII infusions administered intravenously up to two to three times per week or 100 to 150 infusions per year. Despite these regimens, many people continue to experience breakthrough bleeds, resulting in progressive and debilitating joint damage, which can have a major impact on their quality of life.

Hemophilia A, also called Factor VIII deficiency or classic hemophilia, is an X-linked genetic disorder caused by missing or defective Factor VIII, a clotting protein. Although it is passed down from parents to children, about 1/3 of cases are caused by a spontaneous mutation, a new mutation that was not inherited. Approximately 1 in 10,000 people have Hemophilia A.

Investor Conference Call and Webcast to be Held Today at 11:00 a.m. Eastern Time

BioMarin will host a conference call and webcast to discuss the CHMP decision today, Friday, June 24th, 2022, at 11:00 a.m. ET. This event can be accessed in the investor section of the BioMarin website at https://investors.biomarin.com/events-presentations.

U.S./Canada Dial-in Number: 800-830-9649	Replay Dial-in Number: 800-645-7964
International Dial-in Number: 213-992-4624	Replay International Dial-in Number: 757-849-6722
(No ID required for live call)	Playback ID: 2361#

About BioMarin

BioMarin is a global biotechnology company that develops and commercializes innovative therapies for people with serious and life-threatening rare diseases and medical conditions. The Company selects product candidates for diseases and conditions that represent a significant unmet medical need, have well-understood biology and provide an

opportunity to be first-to-market or offer a significant benefit over existing products. The Company's portfolio consists of seven commercial products and multiple clinical and preclinical product candidates for the treatment of various diseases. For additional information, please visit www.biomarin.com.

Forward-Looking Statements

This press release contains forward-looking statements about the business prospects of BioMarin Pharmaceutical Inc. (BioMarin), including without limitation, statements about a final approval decision, typically consistent with the CHMP recommendation, expected from the European Commission in Q3 2022, the number of adults in BioMarin territories across Europe, Middle East, and Africa who are affected by severe hemophilia A; BioMarin anticipating additional patient access through named patient sales based on an EMA approval in countries in the Middle East and Africa and the expectation that additional market registrations to be facilitated by an anticipated EMA license, the conversion from a conditional marketing authorization to a standard marketing authorization being contingent on the provision of additional data from currently ongoing Roctavian clinical studies, including 5 years of follow-up of the pivotal phase 3 study 270-301, and results from studies 270-303, 270-203 and 270-205.

These forward-looking statements are predictions and involve risks and uncertainties such that actual results may differ materially from these statements. These risks and uncertainties include, among others: the outcome of the European Commission's review of the CHMP opinion, the results and timing of current and planned preclinical studies and clinical trials of valoctocogene roxaparvovec; additional data from the continuation of the Phase 1/2 trial and the Phase 3 trial, any potential adverse events observed in the continuing monitoring of the participants in the clinical trials; the content and timing of decisions by the FDA, the European Commission and other regulatory authorities including decisions to grant additional marketing registrations based on an EMA license ; the content and timing of decisions by local and central ethics committees regarding the clinical trials; our ability to successfully manufacture valoctocogene roxaparvovec for the clinical trials and commercially, if approved; our ability to provide the additional data from currently ongoing Roctavian clinical studies, including 5 years of follow-up of the pivotal phase 3 study 270-301, and results from studies 270-303, 270-203 and 270-205 to support the conversion from a conditional marketing authorization to a standard marketing authorization and those other risks detailed from time to time under the caption "Risk Factors" and elsewhere in BioMarin's Securities and Exchange Commission (SEC) filings, including BioMarin's Quarterly Report on Form 10-Q for the quarter ended March 31, 2022, and future filings and reports by BioMarin. BioMarin undertakes

no duty or obligation to update any forward-looking statements contained in this press release as a result of new information, future events or changes in its expectations.

BioMarin® is a registered trademark and ROCTAVIAN™ is a trademark of BioMarin Pharmaceutical Inc.

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