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Ad hoc announcement pursuant to Art. 53 LR

# Santhera Receives Positive CHMP Opinion Recommending Approval of AGAMREE® (vamorolone) for the Treatment of Duchenne Muscular Dystrophy

- *Committee for Medicinal Products for Human Use (CHMP) issues positive opinion for AGAMREE® (vamorolone) for the treatment Duchenne muscular dystrophy (DMD) in children and adults aged 4 years and older*
- *European Commission (EC) decision on marketing authorization is expected in late 2023*
- *AGAMREE could become the first drug fully approved by the European Medicines Agency (EMA) for the treatment of patients with DMD*
- *Anticipation of vamorolone approval in the U.S. on the PDUFA date of October 26, 2023*

**Pratteln, Switzerland, October 13, 2023 – Santhera Pharmaceuticals (SIX: SANN) announces that the CHMP adopted a positive opinion in favor of approval of AGAMREE® (vamorolone) for the treatment of DMD patients aged 4 years and older. In its recommendation for approval, the CHMP acknowledges the positive benefit-risk profile of AGAMREE in this patient population, including certain safety benefits of AGAMREE compared to standard of care corticosteroids in the treatment of DMD. Santhera plans for a first commercial launch in Germany in Q1-2024, subject to approval by the EC.**

"We are thrilled about the CHMP's positive opinion, which recognizes the urgent medical need for an effective and well tolerated treatment for this devastating disease. We can now execute on our plans to ensure AGAMREE is made available to patients in the EU as soon as the European Commission marketing authorization is received," said **Dario Eklund, CEO of Santhera**. "The recommendation by the CHMP is a testament to the dedication and collaboration of all those involved in the development of vamorolone, including ReveraGen Biopharma, the DMD patient community, researchers, healthcare professionals, and our employees."

"We are very pleased about the positive vote of the European Medicines Agency. This offers Duchenne patients a new treatment alternative to slow down the progression of the disease with fewer side effects," said **Maggie C. Walter, MD, MA, Associate Professor for Neurology, Friedrich-Baur-Institute, Ludwig-Maximilians-University of Munich, Germany**.

"We are very excited about the positive opinion from the European Medicines Agency," declared **Ezio Magnano, President of Parent Project Italy**. "Today's announcement is another huge step ahead for our Duchenne and Becker community. We hope this new treatment will minimize some of the side effects of steroids, further improving patient's quality of life which is our main goal."

The clinical evidence for the efficacy and safety of AGAMREE (vamorolone) in the regulatory submission was derived from the positive pivotal VISION-DMD study and three open-label studies (including extensions), in which vamorolone was administered at doses between 2 and 6 mg/kg/day for a total treatment period of up to 30 months, as well as an external comparator study (FOR-DMD [6]) and several

clinical pharmacology studies. The studies were carried out by Santhera's partner ReveraGen and 32 academic clinical trial centers in 11 countries.

In the pivotal VISION-DMD study, boys treated with vamorolone on average maintained growth similar to those treated with placebo, whilst those treated with prednisone on average experienced growth stunting. Patients who switched from prednisone to vamorolone after 24-weeks were, on average, able to resume growing in height over the remainder of the study.

Unlike corticosteroids, vamorolone did not result in a reduction of bone metabolism as measured by bone biomarkers, nor in a significant reduction of bone mineralization in the spine as measured by Dual-Energy X-Ray Absorptiometry (DXA) after 48 weeks in the clinical studies.

Santhera will continue to collect data to further characterize the long-term effectiveness and safety differentiation of vamorolone.

A marketing authorization decision from the EC is expected within approximately two months of the positive CHMP opinion. Subject to approval, AGAMREE will be the first and only medicinal product fully approved by the EMA for the treatment of DMD and the marketing authorization will be valid in all 27 member states of the European Union as well as Iceland, Liechtenstein and Norway. Potential launches of AGAMREE in the EU, with Germany taking the lead, are planned to start in Q1-2024.

In the U.S., FDA established the target Prescription Drug User Fee Act (PDUFA) action date for its regulatory decision on the vamorolone NDA as October 26, 2023. Subject to approval, Santhera's licensing partner Catalyst Pharmaceuticals plans to launch vamorolone in the U.S. in Q1-2024.

**About AGAMREE® (vamorolone)**

Vamorolone is a novel drug candidate with a mode of action based on binding to the same receptor as glucocorticoids but modifying its downstream activity and is not a substrate for the 11-β-hydroxysteroid dehydrogenase (11β-HSD) enzymes that may be responsible for local tissue amplification and corticosteroid-associated toxicity in local tissues, and as such is considered a dissociative anti-inflammatory drug [1-3]. This mechanism has shown the potential to 'dissociate' efficacy from steroid safety concerns and therefore vamorolone is positioned as an alternative to existing corticosteroids, the current standard of care in children and adolescent patients with DMD [1-3].

In the pivotal VISION-DMD study, vamorolone met the primary endpoint Time to Stand (TTSTAND) velocity versus placebo (p=0.002) at 24 weeks of treatment and showed a good safety and tolerability profile [1]. The most commonly reported adverse events versus placebo from the VISION-DMD study were cushingoid features, vomiting and vitamin D deficiency. Adverse events were generally of mild to moderate severity.

Currently available data show that vamorolone, unlike corticosteroids, has no restriction of growth [4] and no negative effects on bone metabolism as demonstrated by normal bone formation and bone resorption serum markers [5].

Vamorolone has Orphan Drug status for DMD in the U.S. and in Europe and has received Fast Track and Rare Pediatric Disease designations by the U.S. FDA and Promising Innovative Medicine (PIM) status from

the UK MHRA for DMD. Vamorolone is an investigational medicine and is currently not approved for use by any health authority.

References:
[1] Guglieri M et al (2022). JAMA Neurol. 2022;79(10):1005-1014. doi:10.1001/jamaneurol.2022.2480. Link.
[2] Liu X et al (2020). Proc Natl Acad Sci USA 117:24285-24293
[3] Heier CR et al (2019). Life Science Alliance DOI: 10.26508
[4] Ward et al., WMS 2022, FP.27 - Poster 71. Link.
[5] Hasham et al., MDA 2022 Poster presentation. Link.
[6] FOR-DMD. Link.

**About Duchenne Muscular Dystrophy**

Duchenne muscular dystrophy (DMD) is a rare inherited X-chromosome-linked disease, which almost exclusively affects males. DMD is characterized by inflammation which is present at birth or shortly thereafter. Inflammation leads to fibrosis of muscle and is clinically manifested by progressive muscle degeneration and weakness. Major milestones in the disease are the loss of ambulation, the loss of self-feeding, the start of assisted ventilation, and the development of cardiomyopathy. DMD reduces life expectancy to before the fourth decade due to respiratory and/or cardiac failure. Corticosteroids are the current standard of care for the treatment of DMD.

**About Santhera**

Santhera Pharmaceuticals (SIX: SANN) is a Swiss specialty pharmaceutical company focused on the development and commercialization of innovative medicines for rare neuromuscular and pulmonary diseases with high unmet medical need. The Company has an exclusive license from ReveraGen for all indications worldwide to AGAMREE® (vamorolone), a dissociative steroid with novel mode of action, which was investigated in a pivotal study in patients with Duchenne muscular dystrophy (DMD) as an alternative to standard corticosteroids. For AGAMREE for the treatment of DMD, Santhera has received a positive opinion on the marketing authorization application (MAA) from the CHMP of the European Medicines Agency (EMA), a new drug application (NDA) is under review by the U.S. FDA, and an MAA has been submitted to the UK Medicines and Healthcare products Regulatory Agency (MHRA). Santhera has out-licensed rights to vamorolone for North America to Catalyst Pharmaceuticals and for China to Sperogenix Therapeutics. The clinical stage pipeline also includes lonodelestat to treat cystic fibrosis (CF) and other neutrophilic pulmonary diseases. For further information, please visit www.santhera.com.

*AGAMREE® is a trademark of Santhera Pharmaceuticals.*

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