Press Release

Astellas Provides Update on ASPIRO Clinical Trial of AT132 in Patients with X-linked Myotubular Myopathy

TOKYO, September 1, 2021 - Astellas Pharma Inc. (TSE: 4503, President and CEO: Kenji Yasukawa, Ph.D., "Astellas") announced that it has voluntarily paused screening and dosing of additional participants in its ASPIRO clinical trial evaluating AT132 in patients with X-linked Myotubular Myopathy (XLMTM).

This decision follows the reporting of a recent serious adverse event (SAE) in a study participant due to abnormal liver function tests (LFTs) observed in the weeks following dosing of the AT132 investigational gene therapy product at a lower dose ($1.3x10^{14}$ vg/kg). Astellas voluntarily halted screening and dosing, reported the SAE to regulatory agencies, and is engaged in dialogue with regulators about this SAE.

At this time, an Investigational New Drug (IND) clinical hold has not been issued. In the U.S., an IND clinical hold is an order issued by the U.S. Food and Drug Administration (FDA) to the sponsor of a clinical trial to delay a proposed clinical trial or suspend an ongoing clinical trial. If Astellas receives a clinical hold letter, it will review the content and determine next steps.

As reported in some XLMTM patients, the participant has a history of intermittent cholestasis. However, prior to dosing, this participant had a normal liver ultrasound; and the participant's LFTs, reflecting normal bilirubin levels, were within eligibility criteria. Astellas will continue to closely monitor the participant's status.

"We will continue to work with the site investigator and site hepatologist to closely monitor this participant," said Nathan Bachtell, M.D., Senior Vice President and Head of Gene Therapy, Medical & Development at Astellas. "As we learn more about the case, we will incorporate any new observations into our ongoing investigation in order to have a well-informed discussion with the independent Data Monitoring Committee, our Liver Advisory Panel, and study investigators. Given previous hepatic events within the program, any one SAE needs to be viewed both individually and in the context of the broader program as we move forward. We remain committed to the development of AT132 and the XLMTM patient community. We will provide additional information about our investigation at the appropriate time."

To date, 24 ASPIRO participants have received AT132: seven at the $1.3x10^{14}$ vg/kg dose and 17 at the $3.5x10^{14}$ vg/kg dose. Three participants previously treated at the $3.5x10^{14}$ vg/kg dose developed progressive cholestatic hepatitis and subsequent decompensated liver failure. These three participants thereafter died of either sepsis (2 participants) or a gastrointestinal bleed (1 participant), all of which were a consequence of liver failure.

In December of 2020 the clinical hold was lifted after the FDA reviewed the modifications to the ASPIRO trial protocol, which included a reduction of dosing to the $1.3x10^{14}$ vg/kg dose level. The participant associated with this current SAE was dosed in the summer of 2021, after the original clinical hold was lifted. The initial elevation of hepatic lab values was noted within the first month of dosing. Despite the voluntary pause in screening and dosing, the Astellas Medical Monitor and ASPIRO investigators will continue to monitor all study participants for all safety outcomes.

About X-linked Myotubular Myopathy
XLMTM is a serious, life-threatening, rare neuromuscular disease that is characterized by extreme muscle weakness, respiratory failure and early death. Mortality rates are estimated to be 50 percent in the first 18 months of life. For those patients who survive past infancy, there is an estimated additional 25 percent mortality by the age of 10. XLMTM is caused by mutations in the MTM1 gene that lead to a lack or dysfunction of myotubularin, a protein that is needed for normal development, maturation and function of skeletal muscle cells. The disease affects approximately 1 in 40,000 to 50,000 newborn males.

XLMTM places a substantial burden of care on patients, families and the healthcare system, including high rates of healthcare utilization, hospitalization and surgical intervention. More than 80 percent of XLMTM patients require ventilator support, and the majority of patients require a gastrostomy tube for nutritional support. In most patients, normal developmental motor milestones are delayed or never achieved. Currently, only supportive treatment options, such as ventilator use or a feeding tube, are available.

About AT132 for the treatment of X-linked Myotubular Myopathy
Astellas is developing AT132, an AAV8 vector containing a functional copy of the MTM1 gene, for the treatment of XLMTM. AT132 may provide patients with significantly improved outcomes based on the ability of AAV8 to target skeletal muscle and increase myotubularin expression in targeted tissues following a single intravenous administration. The preclinical development of AT132 was conducted in collaboration with Genethon (www.genethon.fr).

AT132 has been granted Regenerative Medicine and Advanced Therapy (RMAT), Rare Pediatric Disease, Fast Track, and Orphan Drug designations by the U.S. Food and Drug Administration (FDA), and Priority Medicines (PRIME) and Orphan Drug designations by the European Medicines Agency (EMA).

About ASPIRO
ASPIRO is a two-part, multinational, randomized, open-label ascending dose trial to evaluate the safety and preliminary efficacy of AT132 in XLMTM patients less than five years of age. Primary endpoints include safety (adverse events and certain laboratory measures) and efficacy (assessments of neuromuscular and respiratory function). Secondary endpoints include the burden of disease and health-related quality-of-life, and muscle tissue histology and biomarkers.

About Astellas Gene Therapies
Astellas integrated its wholly owned subsidiary, Audentes Therapeutics, Inc. as of April 1, 2021 and established “Astellas Gene Therapies” within the organization as an Astellas Center of Excellence developing genetic medicines with the potential to deliver transformative value for patients. Based on an innovative scientific approach and industry leading internal manufacturing capability and expertise, we are currently exploring three gene therapy modalities: gene replacement, exon skipping gene therapy, and vectorized RNA knockdown and hope to also advance additional Astellas gene therapy programs toward clinical investigation. We are based in San Francisco, with manufacturing and laboratory facilities in South San Francisco and Sanford, North Carolina.

About Astellas
Astellas Pharma Inc. is a pharmaceutical company conducting business in more than 70 countries around the world. We are promoting the Focus Area Approach that is designed to identify opportunities for the continuous creation of new drugs to address diseases with high unmet medical needs by focusing on Biology and Modality. Furthermore, we are also looking beyond our foundational Rx focus to create Rx+® healthcare solutions that combine our expertise and knowledge with cutting-edge technology in different fields of external partners. Through these efforts, Astellas stands on the forefront of healthcare change to turn innovative science into value for patients. For more information, please visit our website at https://www.astellas.com/en.

Cautionary Notes
In this press release, statements made with respect to current plans, estimates, strategies and beliefs and other statements that are not historical facts are forward-looking statements about the future performance of Astellas. These statements are based on management’s current assumptions and beliefs in light of the information currently available to it and involve known and unknown risks and uncertainties. A number of factors could cause actual results to differ materially from those discussed in the forward-looking statements. Such factors include, but are not limited to: (i) changes in general economic conditions and in laws and regulations, relating to pharmaceutical markets, (ii) currency exchange rate fluctuations, (iii) delays in new product launches, (iv) the inability of Astellas to market existing and new products effectively, (v) the inability of Astellas to continue to effectively research and develop products accepted by customers in highly competitive markets, and (vi) infringements of Astellas’ intellectual property rights by third parties.

Information about pharmaceutical products (including products currently in development) which is included in this press release is not intended to constitute an advertisement or medical advice.

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