News Release

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Janssen Announces Late-Breaking Data from Two Gene Therapy Programs at the American Academy of Ophthalmology 2022 Annual Meeting

Results from Phase 1/2 MGT009 study demonstrate safety profile of investigational gene therapy botaretigene sparoparvovec (AAV-RPGR) and suggest sustained vision improvement in patients with X-linked retinitis pigmentosa (XLRP)

Data from a separate Phase 1 study show all three doses of investigational gene therapy JNJ-1887 met the primary endpoint for safety in adults with geographic atrophy (GA)

CHICAGO, October 1, 2022 – The Janssen Pharmaceutical Companies of Johnson & Johnson announced today the primary results from the Phase 1/2 study evaluating the investigational gene therapy botaretigene sparoparvovec (formerly AAV-RPGR) in patients with the inherited retinal disease X-linked retinitis pigmentosa (XLRP) associated with the retinitis pigmentosa GTPase regulator (RPGR) gene. Treatment with botaretigene sparoparvovec was

found to have an acceptable safety profile, and efficacy assessments in this proof-of-concept study demonstrated encouraging improvements in retinal sensitivity, visual function and functional vision.[1] These findings and additional updates, including data from a Phase 1 trial of investigational gene therapy JNJ-81201887 (JNJ-1887) for patients with geographic atrophy (GA), a late-stage and severe form of age-related macular degeneration (AMD), were presented in late-breaking oral presentations today at the Retina Subspecialty Day program of the American Academy of Ophthalmology (AAO) 2022 Annual Meeting (Abstracts #30071754 and #30071749).

XLRP is a rare condition estimated to impact one in 40,000 people globally.[2,3] People with XLRP have progressive vision loss, starting in childhood with night blindness.[4] Over time, they lose their peripheral vision leading to legal blindness by middle age.[4] Botaretigene sparoparvovec is being investigated in collaboration with MeiraGTx Holdings plc to treat patients with XLRP caused by disease-causing variants in the eye-specific form of the RPGR (RPGR ORF15) gene. Through a one-time administration, botaretigene sparoparvovec is designed to deliver functional copies of the RPGR gene to counteract the loss of retinal cells with the goal of preserving and potentially restoring vision for those living with XLRP. Currently, there are no approved treatments for XLRP.[4]

"Individuals living with XLRP often begin to experience symptoms in childhood, and as retinal degeneration progresses toward blindness, they can start to feel a sense of hopelessness as there are no treatments to turn to," said Michel Michaelides, B.Sc., M.B., B.S., M.D. (Res), FRCOphth, FACS, Consultant Ophthalmologist, Moorfields Eye Hospital, Professor of Ophthalmology, University College London and lead investigator.[‡] "These results from the MGT009 study are promising, as they represent the potential for botaretigene sparoparvovec to preserve vision and ultimately restore hope for these patients."

The primary endpoint of the MGT009 study (NCT03252847) was safety, with

secondary endpoints measuring changes in assessments of three domains of vision—retinal sensitivity, visual function and functional vision—at specified time points post-treatment.[1] In the study's dose escalation and expansion phases, significant sustained or increased functional improvement in each visual domain was observed in participants treated with botaretigene sparoparvovec compared to the randomized untreated control arm of the study at six months post-treatment.[1]

Analyses of the pooled low and intermediate dose cohorts demonstrated improvement in retinal sensitivity in the treated eyes compared to untreated eyes in the randomized concurrent control arm as measured by both full-field static perimetry and microperimetry.[1] An improvement in mean retinal sensitivity as measured by static perimetry in the central 10-degree area of the retina was observed at six months in the treated eyes compared to untreated eyes in the randomized concurrent control arm [in the full analysis of pooled low and intermediate doses across adults: 1.96 decibel (dB); (±95% CI: 0.59, 3.34); and in the sensitivity analysis when applying the Phase 3 criteria: 2.42 (0.91, 3.93)].[1]

As part of the study, patients performed a functional vision assessment using a visual mobility maze to assess their ability to navigate through simulated real-life obstacles across a broad range of controlled light. At week 26, improvement in walk time was observed between the treated eyes in the low and intermediate dose cohorts and the untreated eyes in the randomized concurrent control arm at low illumination levels (full analysis nominal p-value < 0.05 at lux 1 and lux 16; in the sensitivity analysis when applying the Phase 3 criteria nominal p-value < 0.01 at lux 1, lux 4 and lux 16).[1]

The safety profile of botaretigene sparoparvovec observed in MGT009 was consistent with previous reports.[1] Botaretigene sparoparvovec demonstrated an adverse event (AE) profile that was anticipated and manageable.[1] Most AEs were related to the surgical delivery procedure, were transient and resolved without intervention.[1] There were no dose-limiting events.[1] A total of three serious adverse events (SAEs) were observed in the overall Phase 1/2 MGT009 clinical study; two

SAEs, which were previously reported, were observed in the dose-escalation phase of the study (n=10; one retinal detachment and one panuveitis in the low dose cohort), and a single additional SAE of increased intraocular pressure was observed in the dose escalation phase and resolved with treatment.[1]

"Without an approved treatment option available, people with XLRP are faced with the inevitable fate of going blind in the prime of life," said James List, M.D., Ph.D., Global Therapeutic Area Head, Cardiovascular, Metabolism, Retina & Pulmonary Hypertension, Janssen Research & Development, LLC. "We're in a race to save sight for these patients and are encouraged by the strength of the data that we've shared so far. We look forward to advancing the clinical development of botaretigene sparoparvovec as part of our mission to preserve and potentially restore vision for these patients."

Further sensitivity analysis was conducted on study participants by applying the Phase 3 LUMEOS (NCT04671433) study eligibility criteria that corroborated the endpoints selected for the Phase 3 study.[1] Currently, the LUMEOS study of botaretigene sparoparvovec for the treatment of patients with XLRP with disease-causing variants in the RPGR gene is actively dosing patients.

Phase 1 Data Evaluating JNJ-1887 in Geographic Atrophy

Janssen also presented late-breaking data from a Phase 1, open-label, multicenter, dose-escalation, safety and tolerability study (NCT03144999) of a single intravitreal injection of JNJ-1887 in patients with advanced non-exudative (dry) age-related macular degeneration (AMD) with GA. GA is an irreversible condition that affects more than five million individuals worldwide.[5] It has a devastating impact on GA patients' health-related quality of life, including their ability to read, drive and perform other day-to-day activities.[5] In this study, patients (n=17) were sequentially enrolled at a low, intermediate and high dose without steroid prophylaxis, and all three doses of JNJ-1887 met the primary endpoint of safety over the two-year follow-up period.[6] In addition, the supportive efficacy measures, including evaluation of

GA lesion growth rates, showed a continual decline in lesion growth over six-month increments.[6] These results are the first shared from the Company's common eye disease portfolio and indicate further evaluation of this investigational gene therapy is warranted.[6]

About the Phase 1/2 MGT009 Trial and Botaretigene Sparoparvovec

The Phase 1/2 MGT009 trial (NCT03252847) was an open-label, multicenter dose escalation study that enrolled patients aged five years and older with X-linked retinitis pigmentosa (XLRP) caused by disease causing variants in the retinitis pigmentosa GTPase regulator (RPGR) gene at multiple sites in the United States and the United Kingdom. The primary endpoint was safety and tolerability; secondary endpoints assessed retinal sensitivity, visual function and functional vision.

The clinical study was composed of three parts: dose-escalation, pediatric dose-confirmation and an expansion phase. In the dose escalation phase, adult patients were treated at three escalating doses of botaretigene sparoparvovec; a low ($2x10^{11}$ vg/mL), an intermediate ($4x10^{11}$ vg/mL), and a high ($8x10^{11}$ vg/mL) dose. In the expansion phase, 42 adult male patients were randomized to either immediate treatment with one of two low or intermediate doses or an untreated concurrent control arm with deferred treatment. At six months, the untreated control arm was randomized to receive either the low or intermediate treatment doses. Botaretigene sparoparvovec was administered through subretinal delivery in only one eye. The adult patients received treatment at three doses. The pediatric cohort (n=3) was only treated with an intermediate dose of botaretigene sparoparvovec.

Botaretigene sparoparvovec has been granted Fast Track and Orphan Drug designations by the U.S. Food and Drug Administration (FDA) and PRIority MEdicines (PRIME), Advanced Therapy Medicinal Product (ATMP) and Orphan designations by the European Medicines Agency (EMA).

About the Janssen and MeiraGTx Strategic Collaboration

In January 2019, Janssen Research & Development, LLC entered into a worldwide collaboration and license agreement with MeiraGTx Holdings plc, a clinical-stage gene therapy company, to develop, manufacture and commercialize its clinical-stage inherited retinal disease portfolio. Botaretigene sparoparvovec is being developed as part of a collaboration and license agreement. In addition to forming a research collaboration to explore new targets for other inherited retinal diseases, Janssen is working with MeiraGTx to build core capabilities in viral vector design, optimization and manufacturing.

About the Phase 1 JNJ-1887 Trial and JNJ-1887

JNJ-81201887 (JNJ-1887), formerly referred to as AAVCAGsCD59, is an investigational gene therapy for the treatment of people with geographic atrophy (GA) secondary to dry age-related macular degeneration (AMD). JNJ-1887 is designed to increase the expression of a soluble form of CD59 (sCD59) intended to protect retinal cells to slow and prevent disease progression. JNJ-1887 was evaluated in a Phase 1 clinical trial (NCT03144999), an open-label, single-center dose escalation study to determine the safety of JNJ-1887 in adults 50 or older with advanced dry AMD with GA. The patients were treated at three escalating doses of JNJ-1887 without steroid prophylaxis through a single intravitreal injection in one eye.

This Phase 1 study met its primary endpoint of safety in all doses of JNJ-1887 (n=17), with supportive efficacy measures including evaluation of GA lesion growth rates, which showed a continual decline in lesion growth over six-month increments.

JNJ-1887 has been granted Fast Track designation by the U.S. Food and Drug Administration (FDA) and Advanced Therapy Medicinal Product (ATMP) designation by the European Medicines Agency (EMA).

About the Janssen Pharmaceutical Companies of Johnson & Johnson

At Janssen, we're creating a future where disease is a thing of the past. We're the Pharmaceutical Companies of Johnson & Johnson, working tirelessly to make that future a reality for patients everywhere by fighting sickness with science, improving access with ingenuity, and healing hopelessness with heart. We focus on areas of medicine where we can make the biggest difference: Cardiovascular, Metabolism, & Retina; Immunology; Infectious Diseases & Vaccines; Neuroscience; Oncology; and Pulmonary Hypertension.

Learn more at www.janssen.com. Follow us at @JanssenGlobal. Janssen Research & Development, LLC is part of the Janssen Pharmaceutical Companies of Johnson & Johnson.

[‡]*Dr. Michaelides is a scientific founder of, and consultant to, and has a financial relationship with MeiraGTx.*

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Cautions Concerning Forward-Looking Statements

This press release contains "forward-looking statements" as defined in the Private Securities Litigation Reform Act of 1995 regarding botaretigene sparoparvovec and JNJ-81201887. The reader is cautioned not to rely on these forward-looking statements. These statements are based on current expectations of future events. If underlying assumptions prove inaccurate or known or unknown risks or uncertainties materialize, actual results could vary materially from the expectations and projections of Janssen Research & Development, LLC, any of the other Janssen Pharmaceutical Companies and/or Johnson & Johnson. Risks and uncertainties include, but are not limited to: challenges and uncertainties inherent in product research and development, including the uncertainty of clinical success and of obtaining regulatory approvals; uncertainty of commercial success; manufacturing difficulties and delays; competition, including technological advances, new products and patents attained by competitors; challenges to patents; product efficacy or

safety concerns resulting in product recalls or regulatory action; changes in behavior and spending patterns of purchasers of health care products and services; changes to applicable laws and regulations, including global health care reforms; and trends toward health care cost containment. A further list and descriptions of these risks, uncertainties and other factors can be found in Johnson & Johnson's Annual Report on Form 10-K for the fiscal year ended January 2, 2022, including in the sections captioned "Cautionary Note Regarding Forward-Looking Statements" and "Item 1A. Risk Factors," and in Johnson & Johnson's subsequent Quarterly Reports on Form 10-Q and other filings with the Securities and Exchange Commission. Copies of these filings are available online at www.sec.gov, www.jnj.com or on request from Johnson & Johnson. None of the Janssen Pharmaceutical Companies nor Johnson & Johnson undertakes to update any forward-looking statement as a result of new information or future events or developments.

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[1] Michaelides, M et al. Ph1/2 AAV5-RPGR (Botaretigene Sparoparvovec) Gene Therapy Trial in RPGR-associated X-linked Retinitis Pigmentosa (XLRP). Abstract #30071754. Presented at the 2022 American Academy of Ophthalmology Annual Meeting.
[2] Boughman JA, Conneally PM, Nance WE. Population genetic studies of retinitis pigmentosa. *Am J Hum Genet*. 1980;32(2):223–235.
[3] Fishman GA. Retinitis pigmentosa. Genetic percentages. *Arch Ophthalmol*. 1978;96(5):822–826. doi:10.1001/archopht.1978.03910050428005.
[4] Wang DY, Chan WM, Tam PO, et al. Gene mutations in retinitis pigmentosa and their clinical implications. *Clin Chim Acta*. 2005;351(1-2):5-16.
[5] Cohen, MN et al. Phase 1 Study of JNJ-81201887 Gene Therapy in Geographic Atrophy (GA) Due to Age-related Macular Degeneration (AMD). Abstract #30071749. Presented at the 2022 American Academy of Ophthalmology Annual Meeting.
[6] Singh RP, Patel SS, Neilsen JS, et al. Patient-, caregiver- and eye care professional-reported burden of geographic atrophy secondary to age-related macular degeneration. *Am J Ophthalmic Clin Trials*. 2019;2(1):1-6.