Precigen Announces First Patient Dosed for PRGN-2012 AdenoVerse™ Immunotherapy in Patients with Recurrent Respiratory Papillomatosis (RRP)

Mar 23, 2021

- Milestone represents the first patient dosed with an OTS AdenoVerse immunotherapy targeting infectious disease -

- RRP is a rare, difficult-to-treat neoplastic disease caused by HPV 6 or HPV 11 and currently has no proven effective systemic therapy -

GERMANTOWN, Md., March 23, 2021 /PRNewswire/ -- Precigen, Inc., a biopharmaceutical company specializing in the development of innovative gene and cell therapies to improve the lives of patients, today announced that the first patient has been dosed in the Phase I study of PRGN-2012, a first-in-class, investigational off-the-shelf (OTS) AdenoVerse ™ immunotherapy in adult patients with recurrent respiratory papillomatosis (RRP) (clinical trial identifier: NCT04724980). The US Food and Drug Administration recently granted Orphan Drug Designation for PRGN-2012 in RRP in March 2021.

PRGN-2012 is an innovative therapeutic vaccine with optimized antigen design that uses Precigen's gorilla adenovector technology, part of Precigen's proprietary AdenoVerse platform, to elicit immune responses directed against cells infected with HPV 6 or HPV 11. Gorilla adenovectors have numerous advantages, including the ability for repeat administration, the inability to replicate *in vivo,* which may improve safety, and the ability to deliver large payload capacity. In preclinical models, PRGN-2012 has demonstrated strong and specific immune response against HPV 6 and HPV 11.

PRGN-2012 is under development through a Cooperative Research and Development Agreement (CRADA) with the Center for Cancer Research (CCR) at the National Cancer Institute (NCI), which is part of the National Institutes of Health (NIH). This CRADA has allowed Precigen to rapidly and cost-effectively advance PRGN-2012 to the clinic. The Phase I clinical study of PRGN-2012 is led by Scott M. Norberg, DO, Assistant Research Physician, Genitourinary Malignancies Branch, of CCR NCI, and Clint T. Allen, MD, Principal Investigator, Section on Translational Tumor Immunology, of the National Institute on Deafness and Other Communication Disorders (NIDCD), which is also part of the NIH.

The Phase I study follows 3+3 dose escalation of PRGN-2012 as an adjuvant immunotherapy following standard-of-care surgical removal of visible papillomatosis disease. Patients receive up to four injections of PRGN-2012. The primary objective of the study is to determine safety and tolerability and recommended Phase II dose (RP2D) of PRGN-2012. The study will enroll 3 to 6 subjects at each dose level, and 12 patients will be treated at the maximum tolerated dose.

"Dosing the first patient with PRGN-2012, the first in the infectious disease setting, represents a significant milestone for the OTS AdenoVerse platform. RRP patients need new adjuvant treatment options to reduce the number of devastating repeat surgical procedures commonly associated with this disease," said Helen Sabzevari, PhD, President and CEO of Precigen. "We look forward to producing clinical data to build upon the encouraging signals we have seen in preclinical studies in which PRGN-2012 was shown to induce robust HPV 6 and HPV 11-specific T-cell response in RRP patient samples *in vitro*."

For patients interested in enrolling in this clinical study, please call NCI's toll-free number 1-800-4-Cancer (1-800-422-6237) (TTY: 1-800-332-8615), email NCIMO_Referrals@mail.nih.gov, and/or visit the website: trials.cancer.gov.

About Recurrent Respiratory Papillomatosis (RRP)

RRP is a rare, difficult-to-treat and sometimes fatal neoplastic disease of the upper and lower respiratory tracts that is caused by infection with HPV 6 or HPV 11.[1-4] RRP is classified based on age of onset as a juvenile or adult. Juvenile-onset disease has an incidence of 4 per 100,000 and adult-onset RRP has an incidence of 2 to 3 per 100,000. There is no cure for RRP and the current standard-of-care is repeated endoscopic debulking with ablation or excision of papillomatous lesions.[3,4] Recurrence of papilloma after surgical removal is very common and repeated procedures are

required to debulk and monitor the disease, which exposes patients to anesthetic and surgical risks, and emotional distress. RRP morbidity and mortality results from the effects of papilloma mass on the vocal cords, trachea, and lungs, which may cause voice changes, stridor, airway occlusion, loss of lung volume, and/or post-obstructive pneumonia.[5] Although rare, one to three percent of RRP cases can transform into invasive squamous cell carcinoma.[6,7]

AdenoVerse™ Immunotherapy
Precigen's AdenoVerse Immunotherapy platform utilizes a library of proprietary adenovectors for the efficient gene delivery of therapeutic effectors, immunomodulators, and vaccine antigens to modulate the immune system. Precigen's gorilla adenovectors, part of the AdenoVerse library, have potentially superior performance characteristics as compared to current competition. AdenoVerse immunotherapies have been shown to generate high-level and durable antigen-specific neutralizing antibodies and effector T cell immune responses[8-10] as well as an ability to boost these antibody and T cell responses via repeat administration. Superior performance characteristics and high yield manufacturing of AdenoVerse vectors combined with UltraVector® technology allows Precigen to engineer cutting-edge gene therapies to treat complex diseases.

Precigen: Advancing Medicine with Precision ™
Precigen (Nasdaq: PGEN) is a dedicated discovery and clinical stage biopharmaceutical company advancing the next generation of gene and cell therapies using precision technology to target the most urgent and intractable diseases in our core therapeutic areas of immuno-oncology, autoimmune disorders, and infectious diseases. Our technologies enable us to find innovative solutions for affordable biotherapeutics in a controlled manner. Precigen operates as an innovation engine progressing a preclinical and clinical pipeline of well-differentiated unique therapies toward clinical proof-of-concept and commercialization. For more information about Precigen, visit www.precigen.com or follow us on Twitter @Precigen and LinkedIn.

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Cautionary Statement Regarding Forward-Looking Statements
Some of the statements made in this press release are forward-looking statements. These forward-looking statements are based upon the Company's current expectations and projections about future events and generally relate to plans, objectives, and expectations for the development of the Company's business, including the timing and progress of preclinical studies, clinical trials, discovery programs and related milestones, the promise of the Company's portfolio of therapies, and in particular its CAR-T therapies, and the Company's refocus to a healthcare-oriented business. Although management believes that the plans and objectives reflected in or suggested by these forward-looking statements are reasonable, all forward-looking statements involve risks and uncertainties, including the possibility that the timeline for the Company's clinical trials might be impacted by the COVID-19 pandemic, and actual future results may be materially different from the plans, objectives and expectations expressed in this press release. The Company has no obligation to provide any updates to these forward-looking statements even if its expectations change. All forward-looking statements are expressly qualified in their entirety by this cautionary statement. For further information on potential risks and uncertainties, and other important factors, any of which could cause the Company's actual results to differ from those contained in the forward-looking statements, see the section entitled "Risk Factors" in the Company's most recent Annual Report on Form 10-K and subsequent reports filed with the Securities and Exchange Commission.

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