# Provention Bio Announces Key Findings from Pre-clinical Proof-of-concept Study for PRV-3279 for the Prevention of Immunogenicity of Gene Therapy

**- PRV-3279 Murine Surrogate Inhibited the Production of Anti-adeno-associated Virus Vector Antibodies in a Mouse Model for Pompe Disease -**

**- Rapid, Robust and Reversible B cell Inhibition Suggest PRV-3279 Could Become an Adjunctive Co-Treatment with Gene Therapy -**

RED BANK, N.J., Jan. 28, 2021 /PRNewswire/ -- Provention Bio, Inc. (Nasdaq: PRVB), a biopharmaceutical company dedicated to intercepting and preventing immune-mediated diseases, today reported results from a pre-clinical proof-of-concept study for PRV-3279, a DART® (bispecific antibody-based molecule) targeting the B cell surface proteins CD32B and CD79B, conducted in a murine model of gene therapy for Pompe disease. A PRV-3279 mouse surrogate was tested in mice transgenic for human CD32B, which received gene therapy with an adeno-associated virus (AAV) vector AAV9 encoding for the enzyme acid-alpha-glucosidase (GAA) gene. Errors in the GAA gene cause the serious human glycogen storage disease type II (Pompe disease).

In the study, the PRV-3279 surrogate reduced anti-AAV9 vector antibody levels in a dose-dependent fashion. Anti-AAV9 antibodies have been linked to reduced efficacy, safety concerns and the inability to re-dose patients, and thus, based on these and other study data, we believe PRV-3279 co-administration with gene therapy products has the potential to improve the safety and efficacy of this therapeutic modality. The PRV-3279 surrogate in combination with sirolimus increased skeletal muscle levels of GAA enzyme expression. Consistent with prior results from clinical trials in healthy human subjects, the PRV-3279 surrogate decreased IgM production and was well tolerated.

"As the field of gene therapy advances, patients' immune responses to the viral vectors and the transgene products remain a key challenge negatively impacting the safety, efficacy and ability to deliver additional courses systemically," stated Francisco Leon, M.D., Ph.D., chief scientific officer, Provention Bio. "One of the current mitigation strategies to overcome these immune responses is pharmacological modulation of the patients' antibody immune responses with the B cell depleting agent rituximab in combination with the immune-suppressive agent sirolimus. Prolonged use of rituximab has been associated with certain adverse events. The use of PRV-3279, a non-depleting B cell inhibitor, is a potential strategy to address this unmet need in serious genetic diseases."

"A critical challenge for the success of gene therapy is the host immune responses to both the vector capsid and transgene product, which pose ongoing concerns regarding the safety, longevity, extent of gene expression and ability to re-dose," stated Professor Barry Byrne, director of the Powell Gene Therapy Center at the University of Florida. "PRV-3279's mechanism of action, inhibiting B cell activation without depleting these important cells, has the potential to provide a unique opportunity to be used as an adjunctive therapy with gene therapy products. We look forward to collaborating with Provention Bio and other potential partners in forthcoming clinical studies."

"We believe PRV-3279 has the potential to intercept and prevent the immunogenicity of life-saving gene therapy products and other biotherapeutics," stated Ashleigh Palmer, CEO and co-founder, Provention Bio. "Administration of PRV-3279 has been well-tolerated and pharmacodynamically effective in Phase 1 studies, with linear PK and dose-dependent reduction in B cell activation in the absence of depletion. PRV-3279 has also been shown to reduce B cell responses to viral antigens using experimental vaccine challenge in Phase 1. Given these promising clinical data and the novel pre-clinical data in gene therapy, we look forward to opportunities to work with academic and industry experts to combine PRV-3279 with gene therapy products to further our mission of preventing and intercepting devastating immune-mediated conditions."

The company plans to submit the data from this study for presentation at an upcoming medical conference later in 2021.

**About PRV-3279:**

PRV-3279 is a humanized diabody (a bispecific DART molecule) targeting the B cell surface proteins, CD32B and

CD79B. Simultaneous engagement of the CD32B and CD79B receptors triggers inhibition of B cell function and suppression of autoantibody production, thereby regulating B cells without causing depletion. Provention is initially developing PRV-3279 for the interception of systemic lupus erythematosus (SLE), a chronic autoimmune disorder characterized by an abnormal overactivation of B cells and subsequent pathologic production of auto-antibodies. PRV-3279 also has the potential to prevent or reduce the immunogenicity of biotherapeutics, including but not limited to gene therapy vectors and transgenes.

**About Provention Bio, Inc.:**

Provention Bio, Inc. (Nasdaq: PRVB) is a biopharmaceutical company focused on advancing the development of investigational therapies that may intercept and prevent debilitating and life-threatening immune-mediated diseases. The Biologics License Application (BLA) for teplizumab, its lead investigational drug candidate, for the delay or prevention of clinical type 1 diabetes in at-risk individuals has been filed by the U.S. Food and Drug Administration (FDA). The Company's pipeline includes additional clinical-stage product candidates that have demonstrated in pre-clinical or clinical studies proof-of-mechanism and/or proof-of-concept in other autoimmune diseases, including celiac disease and lupus. Visit www.ProventionBio.com for more information and follow us on Twitter: @ProventionBio.

**Internet Posting of Information:**

Provention Bio, Inc. uses its website, www.proventionbio.com, as a means of disclosing material nonpublic information and for complying with its disclosure obligations under Regulation F.D. Such disclosures will be included on the Company's website in the "News" section. Accordingly, investors should monitor this portion of the Company's website, in addition to following its press releases, SEC filings and public conference calls and webcasts.

**Forward Looking Statements:**

Certain statements in this press release are forward-looking, including but not limited to, statements relating to the Company's studies, the potential safety, health benefits of and planned research and development efforts for PRV-3279. These statements may be identified by the use of forward-looking words such as "anticipate," "believe," "forecast," "estimate," "expect," and "intend," among others. These forward-looking statements are based on Provention's current expectations and actual results could differ materially. There are a number of factors that could cause actual events to differ materially from those indicated by such forward-looking statements. These factors include, but are not limited to, risks related to delays in, or failure to obtain FDA approvals or clearances and noncompliance with FDA regulations; the potential impacts of COVID-19 on our business and financial results; changes in law, regulations, or interpretations and enforcement of regulatory guidance;  uncertainties of patent protection and litigation; dependence upon third parties; substantial competition; our need for additional financing and the risks listed under "Risk Factors" in our annual report on Form 10-K for the year ended December 31, 2019, our quarterly reports on form 10-Q, and any subsequent filings with the Securities and Exchange Commission. As with any pharmaceutical under development, there are significant risks in the development, regulatory approval and commercialization of new products. Provention does not undertake an obligation to update or revise any forward-looking statement. The information set forth herein speaks only as of the date hereof.

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