NEWS RELEASE

Inovio Announces First Patient Dosed in Trial to Determine PENNVAX®-GP's Ability to Induce Remission of HIV Infection

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HIV Trial Will Be Fully Funded by $6.9 Million National Institutes of Health Grant

PLYMOUTH MEETING, Pa., Aug. 14, 2018 (GLOBE NEWSWIRE) -- Inovio Pharmaceuticals, Inc. (NASDAQ:INO) announced today that the first participant has been dosed with PENNVAX®-GP in a randomized clinical trial that will evaluate its ability to drive remission of HIV infection. This vaccine widely targets all major HIV strains and the potential to enhance the capacity of the immune system to eliminate or provide life-long control of HIV. This trial is part of a previously reported multi-year $6.95 million grant from the NIH's National Institute of Allergy and Infectious Diseases (NIAID) to develop a single or combination therapy using Inovio's PENNVAX-GP with the goal of attaining long-term HIV remission.

This Phase 1/2 HIV trial is a randomized, double-blinded, placebo-controlled study. The trial is divided into two cohorts and all vaccines are delivered via the CELLECTRA® device. In the main study (Cohort A), 45 HIV-infected adults who initiated antiretroviral therapy during chronic infection will receive either PENNVAX-GP (containing HIV Gag/Pol/Env antigens), INO-6145 (containing HIV Gag/Pol antigens) or a placebo. Both vaccines are also co-administered with INO-9012 (IL-12 DNA immune activator). In the single arm and uncontrolled second study (Cohort B), individuals who initiated antiretroviral therapy during acute HIV infection will receive PENNVAX-GP + INO-9012.

Steven G. Deeks, MD, the clinical trial's Principal Investigator, and Professor of Medicine in Residence at the University of California, San Francisco, where the trial is being conducted, said, "Although we do not expect this or any vaccine to be curative on its own, we firmly believe that a therapeutic vaccine will likely be needed as part of a combination approach. We and others in the field have been very impressed with what Inovio has accomplished in their vaccine against HPV, which shares some similarities with HIV, so we are optimistic."

Kara W. Chew, MD, MS, Assistant Clinical Professor of Medicine and co-lead of the trial with Dr. Judith S. Currier at the collaborating University of California, Los Angeles, added, "We are excited to evaluate the potential of this vaccine to safely induce the broad HIV-specific immune responses likely needed to control HIV without antiretroviral therapy."

Dr. J. Joseph Kim, Inovio's President and CEO, said, "We have already demonstrated that PENNVAX-GP generated the highest overall levels of T cell and antibody immune response rates ever demonstrated by an HIV vaccine in healthy volunteers. Here, we are going after the Holy Grail of HIV treatment – investigating if our vaccine used alone or in combination with other therapies could bring true remission of HIV in patients. The key to this trial is that T cells generated by our vaccines target the body's HIV reservoirs where the infection 'hides' from antiretroviral therapy. Inovio has already shown (in an HPV therapeutics trial) that our immunotherapy can generate sustained T cell responses which are able to traffic to an immunosuppressive tissue environment and eliminate virus-expressing cells. We expect results from this breakthrough study in late 2019."

The primary objectives are to evaluate safety, tolerability and immunogenicity, with a secondary objective to determine PENNVAX-GP's anti-reservoir activity in both cohorts. Study products will be administered at Day 0 and Weeks 4, 8 and 12. Participants will be observed on study for up to 64 weeks. Using standard and innovative measures of immunogenicity, we will determine the capacity of our vaccine strategies to stimulate broad, functional T cell responses against novel HIV epitopes, and comprehensively characterize the impact of the vaccine on several innate and adaptive immune parameters. The size of the active and latent reservoirs before and after vaccination will be measured. For additional information about the study please visit **www.clinicaltrials.gov** (search identifier DAIDS-ES 38409).

Although current antiretroviral therapy can reduce the amount of circulating HIV in the blood to an undetectable level, latent cellular reservoirs of HIV continue to exist in the body such that when therapy is discontinued, these cells begin to produce HIV again. This proof-of-concept clinical program will test whether enhancing anti-HIV specific CD8 killer T cell immune responses alone or in combination with other products can influence the size of the viral reservoir pool, potentially resulting in reducing or eradicating the virus.

In May, PENNVAX-GP, in a Phase 1 trial (HVTN-098) in 94 HIV-negative volunteers, demonstrated durable and robust immune responses at month 12, a full six months after the last dose in the study. Inovio previously reported that PENNVAX-GP elicited the highest overall levels of immune response rates (cellular and humoral) ever demonstrated in a human study by an HIV vaccine. To potentially prevent and treat HIV, PENNVAX-GP consists of a combination of three HIV antigens designed to generate both antibody and T cell responses and cover multiple global HIV strains. These clinical study results are being prepared for a manuscript to be submitted for a publication in a medical journal.

About HIV Infection

As of the end of year 2016 worldwide, nearly 35 million people had died from HIV-related causes and 36 million were living with HIV then. HIV is a retrovirus that causes acquired immunodeficiency syndrome (AIDS), a condition in which progressive failure of the immune system allows life-threatening opportunistic infections and cancers to thrive. HIV is classified into clades, sub-types within which the virus has genetic similarities. The most prevalent HIV-1 clades are B (found mainly in North America and Europe), A and D (found mainly in Africa), and C (found mainly in Africa and Asia).

HIV-1 clade C accounts for 48% of worldwide HIV type 1 cases. It is the most rapidly spreading subtype of HIV. Although antiretroviral therapy has dramatically transformed the treatment of the disease in developed countries, effective HIV vaccines are needed to stop the spread of disease and reduce the need for antiretroviral treatments, which can have harsh side effects and lose their efficacy over time.

About Inovio's PENNVAX® HIV Vaccines and Immunotherapies

Inovio completed initial clinical studies of its HIV immunotherapy PENNVAX-B, targeting clade B viruses, to achieve proof of principle in generating potent immune responses using its SynCon® immunotherapy technology. In two published Phase 1 studies, PENNVAX-B immunization generated high levels of activated, antigen-specific CD8+ killer T cells with proper functional characteristics. This ability uniquely positions PENNVAX as an important product candidate for both preventing and treating HIV infections.

Using a $25 million contract from the NIH, Inovio designed its universal, multi-clade, multi-antigen PENNVAX-GP immunotherapy targeting the env, gag and pol antigens to provide coverage against all major HIV-1 clades. PENNVAX-GP is Inovio's lead preventive and therapeutic immunotherapy for HIV.

About Inovio’s DNA Immunotherapy Technology Platform

Inovio is advancing the medical potential of a unique class of immunotherapy technology. Its DNA-based platform, which is the foundation for all of Inovio’s products, including VGX-3100, is unique in its ability to leverage the body’s naturally existing mechanisms to generate robust, highly targeted immune responses to prevent and treat disease – and to do so in the body without harmful side effects. Its SynCon® immunotherapy design and CELLECTRA® delivery transform novel genetic blueprints into functional antibody and killer T cell responses. Inovio was the first to report the activation – in the body – of significant, antigen-specific functional T cells correlated to statistically significant efficacy in a placebo-controlled, randomized, double-blind Phase 2b clinical trial (HPV-related precancer), with a very favorable safety profile. These data were published in The Lancet and independently described as a “major breakthrough” in the field by U.S. National Cancer Institute scientists. Inovio has achieved significant antigen-specific immune responses against multiple diseases and is advancing a growing pipeline of cancer and infectious disease immunotherapies and vaccines.

About Inovio Pharmaceuticals, Inc.

Inovio is a late-stage biotechnology company focused on the discovery, development, and commercialization of DNA immunotherapies that transform the treatment of cancer and infectious diseases. The Inovio technology platform is designed to activate an individual’s immune system to generate a robust, targeted T cell and antibody response against targeted diseases. Inovio is the only immunotherapy company that has reported generating T cells entirely in vivo in high quantity that are fully functional and whose killing capacity correlates with relevant clinical outcomes with a favorable safety profile. Inovio’s most advanced clinical

program, VGX-3100, is in Phase 3 for the treatment of HPV-related cervical precancer. Also in development are Phase 2 immuno-oncology programs targeting head and neck cancer, bladder cancer, and glioblastoma, as well as platform development programs in hepatitis B, Zika, Ebola, MERS, and HIV. Partners and collaborators include MedImmune, Regeneron, Roche/Genentech, ApolloBio Corporation, The Wistar Institute, University of Pennsylvania, the Parker Institute for Cancer Immunotherapy, DARPA, GeneOne Life Science, Plumbline Life Sciences, Drexel University, National Institute of Allergy and Infectious Diseases, U.S. Army Medical Research Institute of Infectious Diseases, NIH, HIV Vaccines Trial Network, U.S. Military HIV Research Program and CEPI. For more information, visit **www.inovio.com**.

This press release contains certain forward-looking statements relating to our business, including our plans to develop electroporation-based drug and gene delivery technologies and DNA vaccines, our expectations regarding our research and development programs, including the planned initiation and conduct of clinical trials and the availability and timing of data from those trials, as well as our plans and expectations regarding the presentation of data at scientific conferences. Actual events or results may differ from the expectations set forth herein as a result of a number of factors, including uncertainties inherent in pre-clinical studies, clinical trials and product development programs, the availability of funding to support continuing research and studies in an effort to prove safety and efficacy of electroporation technology as a delivery mechanism or develop viable DNA vaccines, our ability to support our pipeline of SynCon® active immunotherapy and vaccine products, the ability of our collaborators to attain development and commercial milestones for products we license and product sales that will enable us to receive future payments and royalties, the adequacy of our capital resources, the availability or potential availability of alternative therapies or treatments for the conditions targeted by us or our collaborators, including alternatives that may be more efficacious or cost effective than any therapy or treatment that we and our collaborators hope to develop, issues involving product liability, issues involving patents and whether they or licenses to them will provide us with meaningful protection from others using the covered technologies, whether such proprietary rights are enforceable or defensible or infringe or allegedly infringe on rights of others or can withstand claims of invalidity and whether we can finance or devote other significant resources that may be necessary to prosecute, protect or defend them, the level of corporate expenditures, assessments of our technology by potential corporate or other partners or collaborators, capital market conditions, the impact of government healthcare proposals and other factors set forth in our Annual Report on Form 10-K for the year ended December 31, 2017, our Quarterly Report on Form 10-Q for the quarter ended June 30, 2018 and other regulatory filings we make from time to time. There can be no assurance that any product candidate in our pipeline will be successfully developed, manufactured or commercialized, that final results of clinical trials will be supportive of regulatory approvals required to market licensed products, or that any of the forward-looking information provided herein will be proven accurate. Forward-looking statements speak only as of the date of this release, and we undertake no obligation to update or revise these statements, except as may be required by law.

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