NEWS RELEASE

Inovio Partners with AIDS Malignancy Consortium to Advance Inovio's HPV Therapy for High-Grade Anal Dysplasia in HIV-positive Patients

2018-08-06

VGX-3100 previously demonstrated Phase 2b efficacy in regressing HPV-related cervical precancer

PLYMOUTH MEETING, Pa., Aug. 06, 2018 (GLOBE NEWSWIRE) -- Inovio Pharmaceuticals, Inc. (NASDAQ:INO) today announced that it has entered into a partnership with the AIDS Malignancy Consortium (AMC) to evaluate VGX-3100, Inovio's immunotherapy for treating HPV-associated precancerous conditions in HIV-positive adult men and women. AMC will fund a Phase 2 clinical trial to evaluate the efficacy of VGX-3100 in adult men and women with human papillomavirus (HPV)-related high-grade anal dysplasia or squamous intraepithelial lesions (ASIL) and HIV. Recruitment is already ongoing for patients who are HIV-positive with histologically confirmed anal high-grade squamous intraepithelial lesions (HSIL) associated with HPV-16 and/or HPV-18. The multi-site Phase 2 study is planning to enroll approximately 75 patients who will receive four doses of VGX-3100. Financial details of the agreement were not disclosed.

Joel M. Palefsky, MD, Professor of Medicine, Division of Infectious Diseases, UCSF, and founder and chair of the HPV Working Group of the NCI AIDS Malignancy Consortium, said, "The incidence of anal cancer among HIV-positive men and women is unacceptably high. Better methods to treat the anal cancer precursor, known as anal high-grade squamous intraepithelial lesions (HSIL), are needed in an effort to prevent progression from HSIL to cancer. Given the encouraging results with VGX-3100 in treatment of cervical HSIL, the AMC looks forward to testing the immunotherapy for treatment of anal HSIL in this population."

Dr. J. Joseph Kim, Inovio's President and CEO, said, "Expanding VGX-3100 to treat anal dysplasia represents a significant increase in commercial potential for our lead product. We thank the AMC for partnering with us to test the efficacy of VGX-3100 in a patient community where there is a great unmet need for a successful therapy. For these patients and others, Inovio is moving forward to become the 'go-to' immunotherapeutic solution provider for all major diseases caused by HPV, including cervical, vulvar and anal precancers."

This open-label, multi-center Phase 2 study is designed to evaluate the safety and efficacy of VGX-3100 administered by

intramuscular (IM) injection with CELLECTRA® delivery system in adult men and women who are HIV-positive with anal HSIL associated with HPV-16 and/or HPV-18. For additional information about the study, please visit **www.clinicaltrials.gov** (search identifier NCT03603808).

Separately, Inovio has already initiated a multi-center Phase 2 study designed to evaluate the safety and efficacy of VGX-3100 in 24 HIV-negative patients with anal HSIL associated with HPV-16 and/or HPV-18. The first patient was dosed in July.

Anal HSIL can lead to HPV-associated squamous cell carcinoma of the anus (SCCA). Anal cancer is uncommon in the general population, but its incidence is considerably increasing and is higher among HIV-positive men and women than in HIV-negative persons. The risk of SCCA among HIV-positive men has continued to increase even after the introduction of highly active antiretroviral therapy. Currently, rates of SCCA in HIV-positive men are higher than cervical cancer reported anywhere in the world. This trend is likely to continue with the aging of the HIV-positive population.

Anal cancer is estimated to have nearly 8,600 new cases diagnosed and cause more than 1,100 deaths in the United States in 2018. Currently, the only treatments for anal dysplasia consist of surgical excision, electro-cautery or laser therapy, but more than 50% of those treated with these current treatments experience recurrence of the disease. The HIV population has a significant burden of existing disease which cannot be addressed by current prophylactic approaches.

About the AIDS Malignancy Consortium

The AIDS Malignancy Consortium (AMC) is a National Cancer Institute-supported clinical trials group founded in 1995 to support innovative trials for AIDS-related cancers. The AMC is composed of 36 Clinical Trials Sites worldwide, five Working Groups, an Administrative Office, a Statistical Office, and an Operations and Data Management Office. Collectively, these components develop and oversee the scientific agenda, manage the groups' portfolio of clinical trials and other scientific-based studies, and help to develop new protocols. The AMC mission is to investigate new treatment and prevention interventions for malignancies in people living with HIV and to study the pathobiology of these tumors in the context of clinical trials.

About VGX-3100

VGX-3100 is a DNA-based immunotherapy under Phase 3 investigation for the treatment of HPV-16 and HPV-18 infection and precancerous lesions of the cervix. Inovio has also initiated open-label Phase 2 clinical trials evaluating its efficacy for treating HPV-related vulvar and anal precancers. VGX-3100 has the potential to be the first approved treatment for HPV infection of the cervix and the first non-surgical treatment for precancerous cervical lesions. VGX-3100 works by stimulating a specific immune response to HPV-16 and HPV-18, which targets the infection and causes destruction of precancerous cells. In a randomized, double-blind, placebo-controlled Phase 2b study in 167 adult women with histologically documented HPV 16/18 cervical HSIL (CIN2/3), treatment with VGX-3100 resulted in a statistically significantly greater decrease in cervical HSIL and clearance of HPV infection vs. placebo. The most common side effect was injection site pain, and no serious adverse events were reported. VGX-3100 utilizes the patient's own

immune system to clear HPV-16 and HPV-18 infection and precancerous lesions without the increased risks associated with surgery, such as loss of reproductive health and negative psychosocial impacts.

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 ASPIRE (Antigen Specific Immune Responses) 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, our plans and expectations regarding partnerships and the plans of GENEOS Therapeutics, Inc. to raise capital. 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 March 31, 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.

CONTACTS:

Investors: Ben Matone, Inovio, 484-362-0076, **ben.matone@inovio.com**

Media: Jeff Richardson, Inovio, 267-440-4211, **jrichardson@inovio.com**

Source: Inovio Pharmaceuticals, Inc.