NEWS RELEASE

Inovio Completes Enrollment of its VGX-3100 Open-label Phase 2 Trial for Treatment of HPV-Related High-Grade Anal Dysplasia

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Company to report preliminary efficacy data later this year

PLYMOUTH MEETING, Pa., Aug. 19, 2019 /PRNewswire/ -- Inovio Pharmaceuticals, Inc. (NASDAQ: INO) announced today that it has completed enrollment in the company's open-label, 24 patient, Phase 2 trial with its lead immunotherapy product VGX-3100 in patients with precancerous lesions of the anus, i.e. anal high-grade squamous intraepithelial lesions (anal HSIL, aka anal intraepithelial neoplasia). VGX-3100 is an immunotherapy that targets human papillomavirus (HPV) 16 and 18 and is being studied for the treatment of HPV-related precancerous lesions and the HPV infection that causes these lesions. Inovio is already evaluating VGX-3100 in two Phase 3 registration trials to treat cervical dysplasia caused by HPV, for which the company has previously announced the completion of enrollment for the first of those pivotal trials, REVEAL 1.

This open-label, multi-center Phase 2 study is designed to evaluate the safety and efficacy of VGX-3100 administered Inovio's CELLECTRA® delivery system in adult men and women with anal HSIL caused by HPV-16 and/or HPV-18 and builds on significant clinical benefits demonstrated with Inovio's HPV immunotherapies in multiple clinical trials. VGX-3100 in a Phase 2 proof-of-concept trial for cervical dysplasia demonstrated a complete response in 43 out of 107 patients in regression of high grade cervical lesions and elimination of the underlying HPV infection. Additional 2 out of 4 metastatic head and neck cancer patients treated with MEDI0457 and a PD-1 check point inhibitors in a Phase 1 study experienced a long-term complete response for more two years and counting. The other 18 out 22 head and neck patients treated with MEDI0457 have not progressed for over 4 years post-treatment. Lastly, a pilot study of Inovio's immunotherapy in recurrent respiratory papillomatosis (RRP) resulted in 2 out of 2 patients delaying surgery due to lack of tumor recurrence.

Dr. J. Joseph Kim, Inovio's President and CEO, said, "We are very excited to expand the target indication for VGX-3100 to treat rare and difficult to treat diseases like anal HSIL, which have a high recurrence rate that requires

multiple, repeat surgeries. A new immunotherapy that could effectively eliminate or delay surgery could be transformative for patients with this high unmet medical condition, Inovio plans to report preliminary efficacy and safety data from this Phase 2 study in the fourth quarter."

Anal HSIL or dysplasia is an orphan disease and the precursor to anal cancer, which is estimated to cause more than 1,280 deaths in the United States in 2019. Anal HSIL is estimated to occur in nearly 20,000 new cases annually. However, that is very likely an underestimate given that no validated screening test exists for the condition and no national registry or reporting exists. Currently, the only treatments for anal dysplasia consist of surgical excision, electro-cautery or laser therapy, but up to 50% of those treated with these current treatments experience recurrence of the disease within one year of treatment and up to nearly 70% within three years of treatment. Therefore, many patients with this condition need multiple treatments. 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 – 64% higher since 1992 -- and is higher among women than in men overall and higher in 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. Anal cancer is estimated to have 8,300 new cases diagnosed in the United States in 2019.

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 is in 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 regression of cervical HSIL and clearance of HPV-16/18 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 Pharmaceuticals, Inc.

Inovio is an innovative biotechnology company focused on the discovery, development, and commercialization of its synthetic DNA technology targeted against cancers and infectious diseases. Inovio's proprietary technology

platform applies antigen sequencing and delivery to enable in vivo protein expression, which can activate potent immune responses to targeted diseases. The technology has been demonstrated to consistently activate robust and fully functional T cell and antibody responses against targeted cancers and pathogens. Inovio's most advanced clinical program, VGX-3100, is in Phase 3 development for the treatment of HPV-related cervical pre-cancer. Also in development are Phase 2 immuno-oncology programs targeting HPV-related cancers and glioblastoma, as well as externally funded platform development programs in Zika, MERS, Lassa and HIV. Partners and collaborators include AstraZeneca, Regeneron, Roche/Genentech, ApolloBio Corporation, GeneOne Life Science, The Bill & Melinda Gates Foundation, Coalition for Epidemic Preparedness Innovations (CEPI), Defense Advanced Research Projects Agency, National Institutes of Health, National Institute of Allergy and Infectious Diseases, National Cancer Institute, HIV Vaccines Trial Network, Walter Reed Army Institute of Research, Medical CBRN Defense Consortium (MCDC), The Wistar Institute, and the University of Pennsylvania. For more information, visit **www.inovio.com**.

This press release contains certain forward-looking statements relating to our business, including our plans to develop DNA-based immunotherapies, 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. 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, 2018, our Quarterly Report on Form 10-Q for the quarter ended June 30, 2019 and other filings we make from time to time with the Securities and Exchange Commission. 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 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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