NEWS RELEASE

INOVIO Announces Dosing of First Subject in Phase 1/2 Clinical Trial for INO-3107, its DNA Medicine to Treat a Rare Disease Recurrent Respiratory Papillomatosis (RRP)

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PLYMOUTH MEETING, Pa., Nov. 23, 2020 /PRNewswire/ -- INOVIO (NASDAQ: INO), a biotechnology company focused on bringing to market precisely designed DNA medicines to treat and protect people from infectious diseases and cancer, today announced it has dosed its first subject with DNA medicine INO-3107 in a Phase 1/2 clinical trial for the treatment of Recurrent Respiratory Papillomatosis (RRP).

RRP is a rare disease caused by the human papillomavirus (HPV) types 6 and 11 infections, a condition that causes non-cancerous tumor growths leading to life-threatening airway obstructions. The disease is currently incurable and is mostly treated by surgery, which temporarily restores the airway. The majority of tumors are recurring, necessitating repeated surgery and severely impacting the quality of life for those living with the disease. Earlier this year, the US Food and Drug Administration (FDA) granted INO-3107 Orphan Drug Designation.

Dr. J. Joseph Kim, President and CEO of INOVIO, said, "We are extremely excited to be able to advance a potentially life-changing, innovative therapy like INO-3107 to patients with RRP, a devastating disease that significantly impacts quality of life. Our Phase 1/2 trial builds on our promising pipeline of HPV programs that also includes our Phase 3 REVEAL studies in HPV-16/HPV-18-related pre-cancerous cervical disease, as well as in HPV-16/HPV-18 vulvar and anal neoplasia. We are encouraged by the plethora of prior data from these programs, and the potential for INO-3107 to show clinical benefit to these patients who suffer from the life-long illness of RRP."

Dr. Ted Mau, Assistant Professor of Otolaryngology, Head and Neck Surgery, at UT Southwestern Medical Center, and lead investigator for INOVIO's RRP Phase 1/2 clinical trial, said, "As a surgeon, I have had patients who have required dozens of surgeries and are looking at many more during their lifetimes. This new systemic therapy is specific for RRP and has the potential to meaningfully alter the treatment paradigm for patients living with this

disease."

About the INO-3107 Phase 1/2 Clinical Trial

The trial, called RRP-001, is a clinical trial investigating the efficacy and safety of INOVIO's novel HPV-6/HPV-11 therapy in subjects with RRP, designed to eradicate both the cause, and sequelae, of infection of the airway with HPV. The open-label, multicenter INO-3107 Phase 1/2 trial is currently open to enrollment to recruit up to 63 subjects and will evaluate the efficacy, safety, tolerability, and immunogenicity of INO-3107 in subjects who have required at least two surgical interventions per year for the past three years for the removal of associated papilloma(s). For this study, adult subjects will first undergo surgical removal of their papilloma(s) and then receive four doses of INO-3107, one every three weeks. The primary efficacy endpoint will be a doubling or more in the time between surgical interventions following the first dose of INO-3107 relative to the frequency prior to study therapy. The study is currently open in the United States and is listed on **ClinicalTrials.Gov** (NCT04398433).

Dr. Jeffrey Skolnik, Senior Vice President of Clinical Development at INOVIO, said, "The opportunity of clinical improvement that INO-3107 may provide to patients with RRP, coupled with the potential to eradicate the HPV virus in these patients, would forever alter the treatment landscape, offering great clinical and lifestyle benefit to patients dealing with this disease. Few, if any, other therapies have shown consistent clinical benefit when studied to date, outside of surgery, in this disease, and no other therapy has provided the potential for a cure, the ultimate goal of any therapeutic intervention. We are proud to be able to contribute to helping patients with this rare disease."

About RRP

Recurrent respiratory papillomatosis (RRP) is a rare disease (estimated at 15,000 active cases in the U.S.) that is characterized by the growth of tumors in the respiratory tract caused by the human papillomavirus. Although benign, papillomas can cause severe, even life-threatening airway obstruction and respiratory complications. A distinguishing aspect of this disease is the tendency for the papilloma to recur after surgical procedures to remove them. Left untreated, if RRP develops in the lungs, affected individuals can potentially experience recurrent pneumonia, chronic lung disease (bronchiectasis) and, ultimately, progressive pulmonary failure. In rare cases papillomas can become cancerous (malignant transformation) developing into squamous cell carcinoma. Additional symptoms of RRP can include hoarse voice, difficulty in sleeping and swallowing, and chronic coughing. RRP symptoms are usually more severe in children than in adults. In children, the disorder is most often diagnosed at or around the age of four years. In adults, the disorder occurs most often in the third or fourth decade.

About INOVIO's DNA Medicines Platform

INOVIO has 15 DNA medicine clinical programs currently in development focused on HPV-associated diseases,

cancer, and infectious diseases, including coronaviruses associated with MERS and COVID-19 diseases being developed under grants from the Coalition for Epidemic Preparedness Innovations (CEPI) and the U.S. Department of Defense. DNA medicines are composed of optimized DNA plasmids, which are small circles of double-stranded DNA that are synthesized or reorganized by a computer sequencing technology and designed to produce a specific immune response in the body.

INOVIO's DNA medicines deliver optimized plasmids directly into cells intramuscularly or intradermally using INOVIO's proprietary hand-held smart device called CELLECTRA®. The CELLECTRA device uses a brief electrical pulse to reversibly open small pores in the cell to allow the plasmids to enter, overcoming a key limitation of other DNA and other nucleic acid approaches, such as mRNA. Once inside the cell, the DNA plasmids enable the cell to produce the targeted antigen. The antigen is processed naturally in the cell and triggers the desired T cell and antibody-mediated immune responses. Administration with the CELLECTRA device ensures that the DNA medicine is efficiently delivered directly into the body's cells, where it can go to work to drive an immune response. INOVIO's DNA medicines do not interfere with or change in any way an individual's own DNA. The advantages of INOVIO's DNA medicine platform are how fast DNA medicines can be designed and manufactured; the stability of the products, which do not require freezing in storage and transport; and the robust immune response, safety profile, and tolerability that have been demonstrated in clinical trials.

With more than 2,000 patients receiving INOVIO investigational DNA medicines in more than 7,000 applications across a range of clinical trials, INOVIO has a strong track record of rapidly generating DNA medicine candidates with potential to meet urgent global health needs.

About INOVIO

INOVIO is a biotechnology company focused on rapidly bringing to market precisely designed DNA medicines to treat and protect people from infectious diseases, cancer, and diseases associated with HPV. INOVIO is the first and only company to have clinically demonstrated that a DNA medicine can be delivered directly into cells in the body via a proprietary smart device to produce a robust and tolerable immune response. Specifically, INOVIO's lead candidate VGX-3100, currently in Phase 3 trials for precancerous cervical dysplasia, destroyed and cleared high-risk HPV 16 and 18 in a Phase 2b clinical trial. High-risk HPV is responsible for 70% of cervical cancer, 91% of anal cancer, and 69% of vulvar cancer. Also in development are programs targeting HPV-related cancers and a rare HPV-related disease, recurrent respiratory papillomatosis (RRP); non-HPV-related cancers glioblastoma multiforme (GBM) and prostate cancer; as well as externally funded infectious disease DNA vaccine development programs in Zika, Lassa fever, Ebola, HIV, and coronaviruses associated with MERS and COVID-19 diseases. Partners and collaborators include Advaccine, ApolloBio Corporation, AstraZeneca, The Bill & Melinda Gates Foundation, Coalition for Epidemic Preparedness Innovations (CEPI), Defense Advanced Research Projects Agency (DARPA)/Joint

Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense (JPEO-CBRND)/Department of Defense (DOD), HIV Vaccines Trial Network, International Vaccine Institute (IVI), Medical CBRN Defense Consortium (MCDC), National Cancer Institute, National Institutes of Health, National Institute of Allergy and Infectious Diseases, Ology Bioservices, the Parker Institute for Cancer Immunotherapy, Plumbline Life Sciences, Regeneron, Richter-Helm BioLogics, Thermo Fisher Scientific, University of Pennsylvania, Walter Reed Army Institute of Research, and The Wistar Institute. INOVIO also is a proud recipient of 2020 Women on Boards "W" designation recognizing companies with more than 20% women on their board of directors. For more information, visit **www.inovio.com**.

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This press release contains certain forward-looking statements relating to our business, including our plans to develop DNA medicines, our expectations regarding our research and development programs, including the planned initiation and conduct of preclinical studies and clinical trials and the availability and timing of data from those studies and trials, and our ability to successfully manufacture and produce large quantities of our product candidates if they receive regulatory approval. 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, product development programs and commercialization activities and outcomes, our ability to secure sufficient manufacturing capacity to mass produce our product candidates, 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 medicines, our ability to support our pipeline of DNA medicine 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, 2019, our Quarterly Report on Form 10-Q for the quarter ended September 30, 2020 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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