NEWS RELEASE

INOVIO Announces Positive Data from Phase 2 Segment of Clinical Trial Evaluating INO-4800, its COVID-19 DNA Vaccine

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INO-4800 was shown to be safe, well-tolerated and immunogenic in all age groups

Phase 2 results informed INOVIO's selection of 2.0 mg dose for the Phase 3 segment of the trial

Data published as a preprint in MedRxiv

PLYMOUTH MEETING, Pa., May 10, 2021 /PRNewswire/ -- INOVIO (NASDAQ:INO), a biotechnology company focused on bringing to market precisely designed DNA medicines to treat and protect people from infectious diseases, cancer, and HPV-associated diseases, today announced positive safety, tolerability and immunogenicity data from its placebo-controlled and blinded Phase 2 segment of its Phase 2/3 clinical trial in the U.S., called INNOVATE (INOVIO INO-4800 Vaccine Trial for Efficacy), evaluating INO-4800, its DNA vaccine candidate for COVID-19. Preliminary results show in a larger population that INO-4800 was generally safe, well-tolerated and immunogenic in all studied age groups.

Findings from the Phase 2 Clinical Trial:

- The Phase 2 segment of the trial enrolled approximately 400 participants, 18 years of age or older, at 16 U.S. sites.
- Participants received either INO-4800 (1.0 mg or 2.0 mg dose) or placebo at 0 and 4 weeks (randomized 3:3:1:1). Each dose was administered by intradermal injection followed by electroporation using INOVIO's CELLECTRA®, its proprietary smart device.
- Safety endpoints included systemic and local administration site reactions through 8 weeks post-dose one (or 4 weeks post-dose 2). Immunology endpoints included antigen-specific binding antibody titers, neutralization titers, and antigen-specific interferon-gamma (IFN-γ) cellular immune responses after two doses of the vaccine.
- Vaccine administration was generally safe and well-tolerated. The majority of adverse events (AEs) were

Grade 1 and Grade 2 in severity and did not appear to increase in frequency with the second dose. The number of participants experiencing each of the most common AEs did not differ between the two dosing groups.

- The geometric mean fold rise (GMFR) of binding and neutralizing antibody levels were statistically significantly greater in the 2.0 mg dose group versus the 1.0 mg dose group.
- The T cell immune responses measured by the ELISpot assay were also higher in the 2.0 mg dose group compared to the 1.0 mg dose group.
- **ClinicalTrials.gov** identifier: NCT04642638

The Phase 2 segment of INNOVATE was designed to evaluate the safety, tolerability and immunogenicity of INO-4800 in a two-dose regimen (1.0 mg or 2.0 mg) in a three-to-one-randomization to receive either INO-4800 or placebo for each dose to identify optimal dose(s) for two age groups (18-50 years and 51 years and older) for the subsequent Phase 3 efficacy evaluation. The preliminary Phase 2 results showed that INO-4800 was safe, well-tolerated and immunogenic in all tested age groups. The trial was funded by the Department of Defense Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense, (JPEO-CBRND) in coordination with the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)) and the Defense Health Agency. Results from the trial can be found in the paper entitled "Safety and immunogenicity of INO-4800 DNA vaccine against SARS-CoV-2: A Preliminary Report of a Randomized, Blinded, Placebo-controlled, Phase 2 Clinical Trial in Adults at High Risk of Viral Exposure," has been published as a pre-print in **MedRxiv** (**https://doi.org/10.1101/2021.05.07.21256652**) prior to peer review.

Dr. Laurent M. Humeau, INOVIO's Chief Scientific Officer, said, "We thank the volunteers who are participating in our INNOVATE Phase 2 blinded trial, as well as the research partners, clinical teams and INOVIO employees who have been working tirelessly to advance this important work. Our Phase 2 results validate our initial COVID-19 Phase 1 results in a larger population, which show that INO-4800 continues to be generally safe, well-tolerated and immunogenic in all studied age groups. The expanded data set enabled a clear dose selection to be made with 2.0 mg as the dose for the global Phase 3 efficacy trial."

INOVIO plans to file preliminary Phase 2 results and device data with the U.S. Food and Drug Administration (FDA). Following the submission and FDA concurrence to proceed, the company plans to conduct a global Phase 3 clinical trial for INO-4800. The company recognizes the growing and unmet global demand for both initial as well as boosting doses of COVID-19 vaccines and looks forward to supporting the rollout of much needed additional vaccines to prevent the spread of COVID-19 – including both current and future variants – around the world.

About the INO-4800 "INNOVATE" Phase 2/3 Clinical Trial

The lead Principal Investigator for the Phase 2 segment of INNOVATE is Dr. Pablo Tebas, Professor of Medicine at

the Hospital of the University of Pennsylvania. The Phase 2 clinical trial is designed to evaluate safety, tolerability and immunogenicity of INO-4800 in a 2-dose regimen (1.0 mg or 2.0 mg), in a three-to-one randomization to receive either INO-4800 or placebo, to confirm the more appropriate dosing level for each of three age groups (18-50 years, 51-64 years and 65 years and older) for the subsequent Phase 3 efficacy evaluation.

The Phase 3 segment of the INNOVATE trial in the U.S. remains on partial clinical hold until INOVIO satisfactorily resolves the FDA's remaining questions related to the CELLECTRA® 2000 device that will be used to deliver INO-4800 into the cells of the skin. The company plans to satisfy the remaining device questions during the Phase 2 segment and prior to the start of the Phase 3 segment of INNOVATE. In the Phase 3 segment of the trial, INOVIO intends to enroll men and non-pregnant women 18 years and older, to evaluate the efficacy of the proposed dosing level(s) for each age group based on the data from the Phase 2 evaluation. The trial will predominately be conducted globally; participants will be enrolled in a two-to-one randomization to receive either INO-4800 or a placebo. The Phase 3 segment will be case-driven with the final number of enrollees to be determined by the incidence of COVID-19 during the Phase 3 segment. The primary endpoint of the Phase 3 segment will be virologically-confirmed COVID-19 disease.

About INO-4800

INO-4800 is INOVIO's DNA vaccine candidate against SARS-CoV-2, the novel coronavirus that causes COVID-19. INOVIO has extensive experience working with coronaviruses and was the first company to initiate a Phase 2a trial for INO-4700, a DNA vaccine candidate for a related coronavirus that causes Middle East Respiratory Syndrome (MERS).

Composed of an optimized DNA plasmid, INO-4800 is delivered directly into cells in the body via a proprietary smart device to produce a robust, safe and tolerable immune response. INO-4800 is the only nucleic-acid based vaccine that is stable at room temperature for more than a year, at 37oC for more than a month, has a five-year projected shelf life at normal refrigeration temperature and does not need to be frozen during transport or storage – all of which are important considerations when preparing for mass immunizations.

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 observed in clinical trials.

With more than 3,000 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 met primary and secondary endpoints for all evaluable subjects in REVEAL 1, in the first of two Phase 3 trials for precancerous cervical dysplasia, demonstrating ability to destroy and clear both high-grade cervical lesions and the underlying high-risk HPV 16 and 18. INOVIO is also evaluating INO-4800, a DNA vaccine candidate against COVID-19, in a Phase 2 clinical trial in the U.S., as well as Phase 2 trials in China and South Korea. 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), Kaneka Eurogentec, 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. 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 and commercialize 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 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, 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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