NEWS RELEASE

INOVIO's INO-5401 in Combination with PD-1 Inhibitor Libtayo® (cemiplimab) Demonstrates 85% of Newly Diagnosed Glioblastoma Patients Are Alive 12 Months Following Treatment

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Results Will Be Presented at the American Society of Clinical Oncology (ASCO) 2020 Annual Meeting

PLYMOUTH MEETING, Pa., May 14, 2020 /PRNewswire/ -- INOVIO (NASDAQ: INO) today announced that 85 percent (44 out of 52) of patients newly diagnosed with the deadly brain cancer glioblastoma multiforme (GBM) who received the company's DNA medicine INO-5401, in combination with INO-9012 and PD-1 inhibitor Libtayo® (cemiplimab), were alive for at least 12 months or more (overall survival at 12 months: OS12) following treatment. These data will be featured at an oral poster presentation at the ASCO 2020 Virtual Scientific Program, May 29-31, 2020.

GBM is the most common and aggressive type of brain cancer. Currently, the median overall survival with standard of care therapy, which includes radiation and chemotherapy (temozolomide: TMZ), is approximately 15 to 22 months.

The Phase 1/2 clinical trial demonstrated that 84.4% percent (27 of 32) of patients with MGMT promoter unmethylated tumors, and 85% (17 of 20) of patients with MGMT promoter methylated tumors were alive at 12 months. This promising clinical result is coupled with a robust immunological response to all three cancer antigens in INO-5401, including human telomerase (hTERT), Wilms Tumor-1 (WT-1) and prostate specific membrane antigen (PSMA). Activated, cytotoxic T cells directed towards these cancer antigens commonly expressed on GBM tumors were detected in all patients tested to date and continue to support the immunogenic potential of INOVIO's DNA medicines. Importantly, INO-5401 + INO-9012 was safe and well-tolerated when given not only with radiation and TMZ, but also with PD-1 inhibition with Libtayo, which is being jointly developed by Regeneron and Sanofi. These results are being presented in a virtual format at the 2020 Annual ASCO meeting (Abstract #2514).

Dr. David Reardon, Clinical Director, Center for Neuro-Oncology of Dana-Farber Cancer Institute and coordinating principal investigator of GBM-001 said, "Although these data are preliminary, and follow-up remains early, this novel combination of a cancer antigen-specific, T cell generating DNA medicine with a PD-1 inhibitor is exciting and may overcome more than 20 years of a standard of care that has proven sub-optimal for our patients with GBM. A tolerable, new combination of medicines utilizing a novel mechanism of action, such as that provided by INO-5401 and INO-9012 with cemiplimab, is very welcome for this hard-to-treat brain cancer, especially when shown to be tolerable with standards such as radiation and chemotherapy, and when demonstrating the immunogenicity seen in the GBM-001 study."

Dr. J. Joseph Kim, INOVIO's President & CEO, said, "While we recognize these data are early, we are very excited to see robust immunogenicity and the potential for extending survival, coupled with a clear ability to be able to combine not only with the standard of care, but with a checkpoint inhibitor, Libtayo. Where others have failed with single-agent checkpoint inhibition in GBM, our DNA medicine combined with Libtayo and standard of care has demonstrated clear immunogenicity and the potential to extend overall survival."

In a previous announcement, INOVIO reported key interim data from the 52-patient clinical trial showed that 80% (16 of 20) of MGMT gene promoter methylated patients and 75% (24 of 32) unmethylated patients were progression-free at six months (PFS6) measured from the time of their first dose, exceeding historical standard-of-care data.

This immunotherapy combination with a PD-1 checkpoint inhibitor also exhibited supportive safety, tolerability, and immunogenicity data and suggested an acceptable safety profile consistent with that of Libtayo and INOVIO's platform technology. The majority of patients tested had a T cell immune response to one or more tumor-associated antigens encoded by INO-5401. Immune responses to all three tumor-associated antigens were demonstrated in this study. INOVIO plans to report 18-month overall survival data later this year.

Study Design

The trial was designed to evaluate safety, immunogenicity and preliminary efficacy of INO-5401 and INO-9012 in combination with Libtayo, with radiation and chemotherapy, in subjects with newly-diagnosed glioblastoma (GBM). This is a Phase 1/2, open-label, multi-center trial conducted in 52 evaluable patients with GBM. There are two cohorts in this trial. Cohort A includes 32 participants with a tumor with an unmethylated O6-methylguanine-deoxyribonucleic acid (DNA) methyltransferase (MGMT) promoter. Cohort B includes 20 participants with a tumor with a MGMT methylated promoter. Both cohorts received INO-5401 and INO-9012 and Libtayo at the same doses and on the same dosing schedule, and both cohorts received radiation and temozolomide (TMZ). Interim data presented here and at SITC was obtained as of October 2019 and overall survival data at 18 months is expected in Q4 2020. For more information of the clinical study, see **www.clinicaltrials.gov**, identifier NCT03491683.

Poster Details

Abstract/Poster 2514
Poster Discussion Session: Central Nervous System Tumors
The ASCO 2020 Virtual Scientific Program runs from May 29 -31.

About Glioblastoma Multiforme (GBM)

GBM is the most common and aggressive type of brain cancer and remains a devastating disease for both patients and caregivers. Its prognosis is extremely poor, despite a limited number of new therapies approved over the last 10 years. The median overall survival for patients receiving standard of care therapy is approximately 15 to 22 months and the median progression-free survival is approximately 7 months. In the U.S., the estimated annual incidence of GBM is 11,362 cases or 3.21 cases per 100,000 persons and the median age at diagnosis is 65 years.

About INO-5401 and INO-9012

INO-5401 encodes for INOVIO's SynCon® antigens for hTERT, WT1, and PSMA, and has the potential to be a powerful cancer immunotherapy in combination with checkpoint inhibitors. The National Cancer Institute previously highlighted hTERT, WT1, and PSMA among a list of important cancer antigens, designating them as high priorities for cancer immunotherapy development. These three antigens were reported to be over-expressed, and often mutated, in a variety of human cancers, and targeting these antigens may prove efficacious in the treatment of patients with cancer. INO-9012 encodes for IL-12, which is a T cell immune activator.

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). 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 6,000 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 protect and treat 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)/Department of Defense (DOD), GeneOne Life Science/VGXI, 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, Roche/Genentech, 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. 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, 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 March 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.

View original content:**http://www.prnewswire.com/news-releases/inovios-ino-5401-in-combination-with-pd-1-inhibitor-libtayo-cemiplimab-demonstrates-85-of-newly-diagnosed-glioblastoma-patients-are-alive-12-months-following-treatment-301059007.html**

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