NEWS RELEASE

Inovio Receives NIH Funding to Target its dMAb® Technology Against Antimicrobial-Resistant Infection

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PLYMOUTH MEETING, Pa., Sept. 17, 2019 /PRNewswire/ -- Inovio Pharmaceuticals, Inc. (NASDAQ: INO) announced today that the company and its collaborator The Wistar Institute have received a $4.6 million National Institutes of Health (NIH) grant in support of innovative research to tackle antimicrobial resistance (AMR) employing Inovio's DNA-encoded monoclonal antibodies (dMAb®) platform. Inovio is advancing a ground-breaking approach to combat multidrug-resistant infections based on Inovio's dMAbs. In a recent study, Inovio developed a targeted dMAb approach for AMR and demonstrated that these dMAbs can effectively control multidrug-resistant infection in animal models.

The U.S. Centers for Disease Control and Prevention estimates that resistance to antibiotics causes 2 million illnesses and 23,000 deaths a year in the United States. Estimates of the impact of antimicrobial resistance on the U.S. economy include $20 billion in direct health-care costs, with additional indirect costs as high as $25 billion a year.

Dr. Laurent Humeau, Executive VP and Chief Scientific Officer, said, "Antimicrobial resistance represents an expanding global public health concern and a tremendous market opportunity for Inovio. While antibiotic-resistant organisms are appearing at an alarming rate, there has been a 30-year hiatus in the development of novel classes of effective antibiotics for combatting these infections. Our ultimate goal is to create a paradigm shift approach to monoclonal antibody technology that results in a pipeline of high impact dMAb products, which can be developed with corporate partnerships, external funding, and collaborations. This grant from the NIH will further this goal."

Earlier this year, Inovio initiated the first human study of its dMAb product (INO-A002) to treat and prevent Zika virus infection. In addition to demonstrating safety and tolerability, this Zika study marks a major step towards the development of a broad range of Inovio's dMAb platform targeting cancer, infectious diseases, and inflammatory diseases. When delivered directly into the body, the genetic instructions provided by the designed synthetic antibody gene sequence instruct the body's cells to become the factory which manufactures the therapeutic

antibody (dMAb) products, enabling a major leap in antibody technology. This $4.6 million NIH grant will support additional pre-clinical studies with the ultimate goal of initiating clinical development for its dMAb technology against antimicrobial-resistant infections.

Inovio and its collaborators have developed dMAb technology by designing synthetic genetic sequences encoding functional monoclonal antibodies into an optimized DNA platform. These gene sequences are administered in vivo to be expressed locally at the site of injection. The recipient receives a gene-encoded blueprint instructing their cells to produce the encoded monoclonal antibody specifically targeting the bacteria. Inovio's dMAbs can be developed simply and quickly and are produced directly in the patient, dramatically lowering production timeline and costs associated with the manufacturing of conventional antibodies; furthermore, DNA plasmids encoding for antibodies do not require expensive cold chain storage and are suitable for delivery in combinations.

Traditional monoclonal antibodies represent the largest segment of pharmaceutical markets today, accounting for more than $100 billion in sales each year, with treatments spanning cancer, infectious diseases, inflammation, and cardiovascular diseases. With its synthetic design and in-patient production, dMAb products represent a disruptive entrant to this important class of pharmaceuticals. Inovio and its collaborators have already received over $60 million in non-dilutive grant funding to advance its dMAb platform in the last few years. There is a significant interest in dMAb as a disruptive entrant to a highly valuable overall monoclonal antibody market as well as its unique applicability for rapid responses against emerging global infectious disease threats.

About Inovio's DNA-based Monoclonal Antibody Platform

Traditional monoclonal antibodies are manufactured outside the body in bioreactors, typically requiring costly large-scale manufacturing facility development and laborious production. In addition, post-production storage and formulation stability limit the reach of some of these products. Inovio's disruptive dMAb technology has the potential to overcome these limitations by virtue of their simplified design using novel plasmid vectors and unique formulations allowing for rapidity of development, improved product stability, ease of manufacturing and deployability, ultimately all resulting in increases in cost-effectiveness and reach, providing potential new avenues for treating a range of diseases. The DNA plasmids are delivered directly into cells of the body and the encoded monoclonal antibody is then produced by the locally transfected cells. Previously published studies show that a single administration of a highly optimized DNA-based monoclonal antibody targeting Zika virus (INO-A002) produced a high level of expression of the antibody in the bloodstream of mice that was protective against lethal animal challenge; earlier this year, Inovio initiated the first human study of INO-A002. In addition to demonstrating safety and tolerability, this Zika dMAb study marks a major step towards the development of a broad range of Inovio's dMAb and dBTE programs. Additional studies similarly reported data showing that dMAb products against Ebola, flu, chikungunya, Lyme, and dengue protected animals against lethal or pathogenic challenge. In addition,

the team has reported delivery of dMAbs that impact prostate as well as breast and ovarian cancers in animals.

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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