NEWS RELEASE

Inovio Develops Novel H3N2 Influenza DNA Vaccine That Generates Cross-Reactive Responses and Provides Complete Protection Against Lethal Preclinical Challenges

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H3N2 virus has been one of the most deadly flu strains in the past 50 years;

And is always matched with the least effective seasonal influenza vaccine

Preclinical work is supported by an NIH grant

PLYMOUTH MEETING, Pa., Sept. 17, 2018 (GLOBE NEWSWIRE) -- Inovio Pharmaceuticals, Inc. (NASDAQ:INO) announced today that its SynCon® vaccine approach using a collection of DNA antigens generated broadly protective antibody responses against the most deadly strains of the H3N2 influenza viruses from the past 50 years and provided complete protection against heterologous lethal challenge in a preclinical study.

Study results were published online in the journal, Human Gene Therapy, in an article by Inovio and its collaborators entitled, "A Synthetic Micro-Consensus DNA Vaccine Generates Comprehensive Influenza-A H3N2 Immunity and Protects Mice Against Lethal Challenge by Multiple H3N2 Viruses." This work was supported by a grant from the U.S. National Institutes of Health. Inovio is currently in discussions with third-party funders to support further development of the company's technology with its advantages in promoting global human health.

Throughout the 2017-18 flu season the commercially available H3N2 vaccine efficacy was reported low due to the mismatch between the vaccine and circulating H3N2 viruses. In some populations the vaccine showed only 13% effectiveness, which contributed to a much greater rate of pneumonia and flu-related deaths. In a pursuit of overcoming the antigenic diversity of H3N2 viruses, Inovio developed a collection of H3HA DNA antigens and demonstrated broad, functional antibody responses against H3 viruses in mice. Vaccination was also capable of inducing robust CD4 and CD8 T cell responses, which are reported to be critical for prevention of disease in the elderly population. Additionally, all (100%) vaccinated mice survived when infected with 10 times of the lethal viral doses from two of the H3N2 virus which circulated during the 1968 and 1982 outbreaks, highlighting the strong protection afforded by Inovio's H3HA vaccine.

Dr. Laurent Humeau, Inovio's Senior Vice President, Research & Development, said, "This study is a step towards conquering the diversity of the H3N2 flu viruses that has vexed researchers for years. In this preclinical study, Inovio demonstrated that its SynCon® method of antigen design is capable of providing protection against multiple H3N2 strains."

Earlier this year Inovio reported that its synthetic vaccine approach using a collection of synthetic DNA antigens generated broad protective antibody responses against all major deadly strains of H1 influenza viruses from the last 100 years including the virus that caused "Spanish Flu" in 1918 in multiple animal models including mice, guinea pigs and non-human primates.

According to CDC, H3N2 hits people harder than other seasonal flu strains and can be especially deadly among vulnerable groups like the elderly and children. Researchers still aren't sure why, but they've found that a flu season involving the H3 virus is generally more virulent — with more hospitalizations and flu-related deaths — than seasons involving mostly H1N1 or influenza B viruses. Furthermore, the H3 part of the commercially available vaccine doesn't just work poorly in older adults. Last year adults aged 18 to 49 got very little protection—13 percent—from the H3 component.

About Inovio Pharmaceuticals, Inc.

Inovio is a late-stage biotechnology company focused on the discovery, development, and commercialization of DNA immunotherapies that transform the treatment of cancer and infectious diseases. Inovio's proprietary platform technology applies next-generation antigen sequencing and DNA delivery to activate potent immune responses to targeted diseases. The technology functions exclusively in vivo, and has been demonstrated to consistently activate robust and fully functional T cell and antibody responses against targeted cancers and pathogens. Inovio is the only immunotherapy company that has reported generating T cells whose killing capacity correlates with relevant clinical outcomes. Inovio's most advanced clinical program, VGX-3100, is in Phase 3 for the treatment of HPV-related cervical pre-cancer. Also in development are Phase 2 immuno-oncology programs targeting head and neck cancer, bladder cancer, and glioblastoma, as well as platform development programs in hepatitis B, Zika, Ebola, MERS, and HIV. Partners and collaborators include MedImmune, Regeneron, Roche/Genentech, ApolloBio Corporation, The Wistar Institute, University of Pennsylvania, Parker Institute for Cancer Immunotherapy, CEPI, DARPA, GeneOne Life Science, Plumbline Life Sciences, Drexel University, NIH, HIV Vaccines Trial Network, National Cancer Institute, U.S. Military HIV Research Program, and Laval University. For more information, visit **www.inovio.com**.

This press release contains certain forward-looking statements relating to our business, including our plans to develop electroporation-based drug and gene delivery technologies and DNA vaccines, 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, and our plans and expectations regarding partnerships. 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, 2017, our Quarterly Report on Form 10-Q for the quarter ended June 30, 2018 and other regulatory filings we make from time to time. 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 licensed 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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