Inovio's DNA-Based monoclonal antibody protects animals against dengue fever

Inovio Pharmaceuticals Inc. {NASDAQ: INO} announced that their DNA-based monoclonal antibody proved effective by providing protection when against Dengue Fever when used in mice.

A 100% survival rate was recorded in the mice tested.

Inovio Pharma' DNA-Based monoclonal antibody protects mice against dengue fever.

PLYMOUTH MEETING, Pa., July 29, 2015 – **Inovio Pharmaceuticals Inc. {NASDAQ: INO}** announced that its DNA-based monoclonal antibody (dMAb) targeting dengue virus provided protection against a lethal dengue virus challenge in mice. A paper, "Protection against dengue disease by synthetic nucleic acid antibody prophylaxis/immunotherapy," was published in Scientific Reports, a Nature Publishing Group journal. While conventional vaccine and monoclonal antibody technologies have shown limited ability to provide an effective solution to dengue to date, the unique attributes and data generated by dMAbs show their potential to provide a needed solution.

In this study, a single intramuscular injection of a DNA plasmid encoding a monoclonal antibody targeting dengue protected mice subsequently exposed to the dengue virus. The protection conferred by the monoclonal antibodies expressed by these dMAbs was very rapid, with 100% survival in mice challenged with lethal enhanced dengue disease less than a week after dMAb administration – this short time frame to

achieve full protection is significantly more rapid than vaccine-driven protection, which can take weeks to months to reach peak efficacy levels.

“This is a positive step on the path to show the broad potential of our novel dMAbs to provide rapid onset of powerful protective and therapeutic capabilities,” said Dr. J. Joseph Kim, President and CEO of Inovio. “This is the first study to report on our dMAb product’s ability to generate fully functional monoclonal antibodies in vivo and provide protection against a lethal viral challenge.

“This is just the beginning. We are building a comprehensive dMAb technology development program that includes immuno-oncology products as well as infectious disease dMAb products, with significant funding already awarded by DARPA to enable our development of dMAb based products against influenza, antibiotic-resistant bacteria, and Ebola.”

Unlike conventional monoclonal technology, which involves constructing protein-based antibodies and manufacturing them in cell culture in a complex and costly process, Inovio’s patent-protected dMAb technology encodes the DNA sequence for a specific monoclonal antibody in a highly optimized plasmid, which would be delivered directly into a subject’s arm using electroporation. Cells in the body would then produce the encoded monoclonal antibody molecules, with intended functional activity including high antigen-binding and neutralization capabilities against the targeted disease. Monoclonal antibodies offer the benefit of inducing a rapid onset of the immune response. DNA-based monoclonal antibody technology provides significant advantages over conventional monoclonal antibody technology, including faster development,

easier product manufacturing, and more favorable pharmacokinetics. The current monoclonal antibody product market is well over $50 billion.

About Inovio Pharmaceuticals, Inc.

Inovio is revolutionizing the fight against cancer and infectious diseases.

Their immunotherapies uniquely activate best-in-class immune responses to prevent and treat disease, and have shown clinically significant efficacy with a favorable safety profile. With an expanding portfolio of immune therapies, the company is advancing a growing preclinical and clinical stage product pipeline. Partners and collaborators include Roche, MedImmune, University of Pennsylvania, DARPA, Gene One Life Science, Drexel University, NIH, HIV Vaccines Trial Network, National Cancer Institute, EORTC, U.S. Military HIV Research Program, and University of Manitoba.

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 and our capital resources. 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 (including, but not limited to, the fact that pre-clinical and clinical results referenced in this

release may not be indicative of results achievable in other trials or for other indications, that the studies or trials may not be successful or achieve the results desired, including safety and efficacy for VGX-3100, that pre-clinical studies and clinical trials may not commence or be completed in the time periods anticipated, that results from one study may not necessarily be reflected or supported by the results of other similar studies and that results from an animal study may not be indicative of results achievable in human studies), 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 broad pipeline of SynCon® active immune therapy and vaccine products, our ability to advance our portfolio of immune-oncology products independently, including INO-5150, and to commence a phase I clinical trial for INO-5150 in the first half of 2015, the adequacy of our capital resources, the availability or potential availability of alternative therapies or treatments for the conditions targeted by the company or its collaborators, including alternatives that may be more efficacious or cost-effective than any therapy or treatment that the company and its collaborators hope to develop, our ability to enter into partnerships in conjunction with our research and development programs, evaluation of potential opportunities, issues involving product liability, issues involving patents and whether they or licenses to them will provide the company 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 the company can finance or devote other significant resources that may be necessary to prosecute, protect or defend them, the level of corporate expenditures, assessments of the company’s 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, 2014, our Form 10-Q for the quarter ended March 31, 2015, and other regulatory filings from time to time. There can be no assurance that any product in Inovio's pipeline will be successfully developed or manufactured, that final results of clinical studies 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.

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