



NEWS RELEASE

Inovio's Positive First-in-Human MERS Vaccine Results Published in The Lancet Infectious Diseases

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PLYMOUTH MEETING, Pa., July 25, 2019 /PRNewswire/ -- Inovio Pharmaceuticals, Inc. (NASDAQ: INO) today announced that positive results from the first-in-human trial of its vaccine against the Middle East Respiratory Syndrome Coronavirus (MERS) were published in **The Lancet Infectious Diseases**. This peer-reviewed article entitled, "Safety and immunogenicity of an anti-Middle East respiratory syndrome coronavirus DNA vaccine: A phase 1, open-label, single-arm, dose-escalation trial," highlights clinical results of Inovio's collaborative vaccine study of INO-4700 (also called GLS-5300) against MERS delivered with the CELLECTRA® efficacy-enhancing device.

Dr. J. Joseph Kim, Inovio President and CEO, said, "This latest publication underscores the potential for rapid deployment of Inovio's DNA vaccines. Impressively, INO-4700 was advanced into the clinic within nine months of vaccine candidate selection -- the first MERS vaccine in humans. Inovio is planning a Phase 2 MERS vaccine trial to be conducted in areas of the world where outbreaks have occurred, funded through our previously established collaboration with CEPI dependent on Phase 1b/2a data."

Inovio and GeneOne Life Science, Inc. (KSE: 011000) are co-developing INO-4700 in this 75-participant clinical trial conducted at the Walter Reed Army Institute of Research Clinical Trials Center (WRAIR) in Silver Spring, MD. Subjects vaccinated with INO-4700 displayed robust levels of MERS antigen-specific antibody and T cell responses at week 14 (two weeks post-third dose). These vaccine-generated immune responses to INO-4700 were durable as they were maintained through 60 weeks following dosing. Inovio's MERS DNA vaccine was well-tolerated and demonstrated overall high levels of antibody responses in 94% of subjects, while also generating broad-based T cell responses in 88% of study participants. Furthermore, INO-4700 administration generated antibody responses with similar potency compared to those of patients who were infected with MERS virus and subsequently recovered from the South Korea MERS outbreak. Even more interestingly, the vaccination generated more robust T cell responses than convalescent patients, suggesting the vaccine's ability to protect from reinfection from MERS virus.

MERS is a severe respiratory disease akin to the Severe Acute Respiratory Syndrome (SARS) and was first identified in Saudi Arabia in 2012. MERS has infected more than 2,400 people and killed nearly 35% of those infected. There are currently no licensed vaccines or specific treatments for MERS. MERS has been identified as a priority disease by the World Health Organization (WHO) and as a top

target for vaccine development by the Coalition for Epidemic Preparedness Innovations (CEPI).

Dr. Kayvon Modjarrad, director of WRAIR's Emerging Infectious Diseases Branch, the principal investigator of the study and first author on the publication, said, "The world witnessed the emergence and devastation of SARS in 2002 and then MERS 10 years later. MERS hasn't gone away. And there's every indication that the family of viruses to which SARS and MERS belong, coronaviruses, are here to stay. U.S. military personnel are at particular risk for MERS, given the deployments to the Middle East and South Korea where the largest MERS outbreaks have occurred. This study is, therefore, an important advancement for the U.S. Army, the military community as a whole and the global stakeholders in the research and development of both MERS and corona virus countermeasures."

This study was funded by the U.S. Department of the Army and GeneOne Life Science, Inc. and conducted at WRAIR. This work was partially supported through a cooperative agreement (W81XWH-07-2-0067) between the Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc., and the U.S. Department of Defense (DoD). GeneOne and the International Vaccine Institute have continued the clinical development efforts on this vaccine as part of a second, Phase 1b/2a trial that is currently ongoing in Korea with the interim data expected later this year. The Wistar Institute also collaborated on the development of this vaccine.

Inovio plans to initiate a larger Phase 2 field trial in the Middle East with through a partnership with CEPI, based on Phase 1b/2a data for INO-4700. Inovio received a \$56 million funding last year from CEPI under which Inovio will develop vaccine candidates through Phase 2 against MERS and Lassa fever. The shared goal of Inovio and CEPI is for a MERS vaccine to be available as soon as possible for emergency use as a stockpile post-Phase 2 testing.

About MERS

Middle East Respiratory Syndrome (MERS) is caused by a coronavirus that is related to the virus which causes severe acute respiratory syndrome (SARS). While the SARS coronavirus infected and caused illness in more than 8,000 people worldwide, the disease was short-lived between 2002 and 2004 and had a case fatality rate of about 10%. Since the MERS was first identified in Saudi Arabia in 2012, as of May 2018 the World Health Organization indicates that laboratory-confirmed MERS cases have been reported for 2,449 people worldwide, with 849 deaths, for a case fatality rate of 35%. Local occasional transmission is still ongoing, primarily in Saudi Arabia where hospital outbreaks occurred earlier this year. Highlighting the global concern for MERS, in the summer of 2015 a single business person returned to South Korea from Saudi Arabia and was the index case for a South Korea epidemic in 17 hospitals around the country. That epidemic was comprised of 186 confirmed cases with a 20% case fatality rate.

About Inovio Pharmaceuticals, Inc.

Inovio is an innovative clinical stage 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.

About GeneOne Life Science, Inc.

GeneOne Life Science, Inc. ("GeneOne" KOSPI: 011000), headquartered in Seoul, South Korea, is an international biotechnology company. GeneOne is developing DNA vaccines, DNA-based therapeutics, and small molecules for conditions with unmet medical needs such as virulent infectious diseases, cancer, metabolic and inflammatory diseases in South Korea and globally. VGXI, Inc., located in Texas, is a wholly-owned subsidiary of GeneOne. VGXI is the leading contract manufacturer globally of high-quality, clinical-grade DNA plasmids for use in vaccines, therapeutics, and gene-therapy used by companies and institutions worldwide and is the manufacturer of the GLS-5300/INO-4700 MERS-CoV DNA plasmid vaccine. For more information, visit <http://www.genels.com/en>.

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 immunotherapies, 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 March 31, 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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