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Profectus BioSciences Receives \$4.6 Million DOD Grant to Develop Vaccine for Western, Eastern, and Venezuelan Equine Encephalitis Viruses

- Studies directed at recombinant Isfahan virus-vectored trivalent vaccine to protect against Western, Eastern, and Venezuelan Equine Encephalitis viruses –
- Vaccine based on recombinant Isfahan virus adds an additional member to the VesiculoVax™ family of vaccine vectors –

BALTIMORE, Md., December 9, 2015 – Profectus BioSciences, Inc., a clinical-stage vaccine company developing innovative vaccines for the prevention and treatment of infectious diseases and the treatment of cancer, announced today that the company has received a grant for \$4.6 million from the Department of the Army, U.S. Army Contracting Command, Aberdeen Proving Ground, Natick Contracting Division, Fort Detrick, MD in support of the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) Medical Countermeasure Systems–Joint Vaccine Acquisition Program (MCS-JVAP). The award will support the accelerated preclinical development and testing of a vaccine to protect soldiers against aerosol exposure with the Western, Eastern, and Venezuelan Equine Encephalitis viruses.

Preliminary studies carried out by Profectus, in collaboration with investigators at the University of Texas Medical Branch at Galveston (UTMB), demonstrated that vaccines based on the Profectus VesiculoVax™ platform provide rapid and durable protection of animals against lethal Venezuelan equine encephalitis virus (VEEV) and Eastern equine encephalitis virus (EEEV) disease. The VesiculoVax™-VEEV and VesiculoVax™-EEEV vaccines used in these studies were based on recombinant Isfahan virus (rISFV) that had been engineered to express surface structures of VEEV and EEEV. ISFV is a vesiculovirus related to, but serologically and genetically distinct from, the prototype vesicular stomatitis virus vector used in the Profectus Ebola vaccine currently in development.

“We welcome this opportunity to extend our partnership with Medical Countermeasure Systems,” said John Eldridge, PhD, Chief Scientific Officer of Profectus. “Our multi-vector vaccine platform is well suited to address the multiple vaccine needs of MCS.”

The three equine encephalitis viruses are transmitted by mosquitoes and can cause disease characterized by a severe inflammation of the brain (encephalitis) in horses and humans. Birds can carry these viruses without developing disease and serve as the viral reservoir. WEEV is found in the U.S. west of the Mississippi River, as far south as Argentina, and as far north as western Canada. EEEV is predominantly found in the eastern U.S. and Canada, while VEEV is most frequently isolated in South and Central America and, less frequently, in Mexico and the southwestern U.S. In humans,

infection with EEEV carries a mortality rate as high as 65%, while infection with WEEV and VEEV can cause severe disease but is rarely fatal.

About the U.S. Department of Defense Medical Countermeasure Systems–Joint Vaccine Acquisition Program (MCS-JVAP)

The Medical Countermeasure Systems–Joint Vaccine Acquisition Program (MCS-JVAP) is a United States Department of Defense agency whose mission is to develop, produce, and stockpile FDA-licensed vaccine systems to protect the warfighter from biological agents. MCS-JVAP facilitates the advanced development and acquisition of medical countermeasures and systems to enhance the nation’s biodefense response capability.

About Profectus VesiculoVax™ Vaccines

Profectus has developed the highly immunogenic VesiculoVax™ vaccine delivery system for emerging infectious disease indications where the rapid induction of neutralizing antibodies is needed to protect against the viruses that cause hemorrhagic fevers such as Ebola, Marburg, and Lassa; encephalitic disease (VEE, EEE, WEE); and arthralgic disease (Chikungunya). The Profectus VesiculoVax™ vaccine delivery technology is based upon seminal discoveries made in the laboratory of Dr. John Rose and patented by Yale University. Building on these discoveries, Profectus scientists have introduced multiple non-reversible genetic modifications that synergistically attenuate the vesiculoviruses and provide vectors that are safe for human use. To extend the VesiculoVax™ platform, Profectus has conducted collaborative studies with scientists at the University of Texas Medical Branch at Galveston (UTMB) that have identified additional vesiculoviruses with utility as vaccine vectors. The resulting VesiculoVax™ platform consists of a family of non-cross-reactive vaccine vectors that are constructed and attenuated to avoid causing illness in animals or humans.

About Profectus BioSciences

Profectus BioSciences is a clinical-stage vaccine company developing innovative vaccines for the prevention and treatment of infectious diseases and the treatment of cancer. Profectus vaccines are based on the company’s proprietary VesiculoVax™ and DNA vaccine delivery platforms. Used alone, the first-in-class VesiculoVax™-vectored vaccines lead to rapid expansion of B cells to provide protection against emerging infectious diseases of public health and biodefense importance such as Ebola, Marburg, Chikungunya, and the Equine Encephalitis viruses. When used as a boost after priming the immune system with best-in-class pDNA vaccines, VesiculoVax™-vectored vaccines lead to the expansion of primed T cells into effector cells that are uniquely suited to killing virally infected cells and cancers. Current programs using the Prime/Boost System of Vaccines (PBS Vax™) strategy include hepatitis B virus (HBV), human papilloma virus (HPV), herpes simplex virus type 2 (HSV-2), and human immunodeficiency virus (HIV). Partners and collaborators include the Galveston National Laboratory, Yale University, the Institute of Human Virology, the Center for HIV/AIDS Vaccine Immunology, the National Cancer Institute, the NIH Division of AIDS, the Bill and Melinda Gates Foundation, the International AIDS Vaccine Initiative, the HIV Vaccines Trials Network, and the AIDS Clinical Trials Group. Profectus has been funded by Cross Atlantic Capital Partners (“XACP”) of Radnor, Pennsylvania. XACP’s primary investor is the Pennsylvania Public School Employees' Retirement System (“PSERS”). For more information, please visit www.profectusbiosciences.com.

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