

August 20-22, 2012 Hilton Chicago/Northbrook, USA

rVSV vectored vaccine to protect against Ebola and Marburg viruses

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 E_{agents} are classified as Category A Priority Pathogens by the NIAID/NIH and CDC, and there are presently no approved active or passive interventions for exposure resulting from natural outbreak, laboratory accident, or deliberate misuse. Public health concern is based on both the emerging infectious disease status of these viruses and their potential use as biologic weapons. An effective prophylactic vaccine would find application with medical personnel and close contacts during outbreaks in endemic areas of sub-Saharan Africa, with laboratory workers engaged in filovirus research, and with military and civilian personnel threatened by weaponized filoviruses. The ideal vaccine to meet both the outbreak and bio-weapon scenarios would rapidly confer protection against all species of EboV and MarV with a single administration. Among the vaccine technologies investigated to date, a tri-valent filovirus vaccine vectored by recombinant vesicular stomatitis virus (rVSV) has shown the greatest potential as a single administration vaccine with the capacity to rapidly provide broad protection against EboV and MarV. Profectus BioSciences has developed a replication competent attenuated rVSV vaccine delivery platform (rVSVN4CT1) that: 1) retains the immunogenicity of vaccines based on the non-attenuated vector, 2) has been manufactured under cGMPs at commercial scale, and 3) has been shown to be safe and immunogenic in man. Recent studies have shown that a single IM dose of an rVSVN4CT1-vectored vaccine expressing the surface glycoprotein of Zaire EboV provides 100% protection of guinea pigs, rhesus macaques, and cynomolgus macaques against challenge with 1,000 LD50 Zaire EboV. In collaboration with the Galveston National Laboratory, and the NIAID Rocky Mountain Laboratories, Profectus is preparing and testing an attenuated tri-valent rVSVN4CT1 vectored filovirus vaccine designed to protect against all strains of EboV and MarV. The tri-valent vaccine is being prepared under conditions that will support future manufacture under cGMPs.

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