Gerardo Kaplan, J Vaccines Vaccin 2012, 3:4
http://dx.doi.org/10.4172/2157-7560.S1.011

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Vaccines and Vaccination

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

Filovirus vaccines

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Ebola virus (EBOV) and Marburg virus (MARV) are members of the Filoviridae, a family of viruses classified as "Category A" bioterrorism agents that cause severe hemorrhagic fever in humans and nonhuman primates with high morbidity and mortality rates up to 90%. After a short incubation period of 4 to 10 days, Filovirus-infected individuals develop an abrupt onset of symptoms that include fever, chills, malaise, and myalgia that are common to many other viral infections. MARV is antigenically stable and exists in only one species, whereas EBOV is more variable and has five species. Filoviruses pose a significant threat to the Public Health and National Security. There are currently no licensed vaccines or therapeutics that could be used in the event of an outbreak or release of these deadly viruses. The Filovirus glycoprotein (GP) forms spikes at the virus surface and is used for cell entry. GP induces cell mediated immunity, is the target for neutralizing antibodies, and is sufficient to elicit protective immunity against Filovirus lethal challenge in small animal and non-human primates. Several Filovirus vaccine candidates are currently under development. GP vaccines based on viral vectors, virus-like particles, and soluble proteins have shown promising results. In my presentation, I will review the state-of-the-art in Filovirus vaccine development.

Disclaimer: "The findings and conclusions in this presentation have not been formally disseminated by the Food and Drug Administration and should not be construed to represent any Agency determination or policy."

Biography

Gerardo Kaplan received his doctoral degree from the University of Buenos Aires, Argentina, and performed postdoctoral studies in poliovirus at The College of Physicians and Surgeons of Columbia University. He is a Senior Investigator at CBER, FDA, and his lab is devoted to the understanding of viral cell entry and pathogenesis of hepatitis A virus and Filoviruses. He has published more than 50 papers in peer-reviewed journals and serves in Review Committees at the FDA.

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