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A versatile and efficient multivalent vaccine platform against infectious diseases caused by viruses with multiple subtypes

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Abstract

For many of the world's most dangerous viruses, traditional vaccine technologies have failed to provide protections, especially against those with multiple strains or serotypes. The hemorrhagic fevers caused by the Ebola and Marburg viruses are among the most deadly diseases to affect humans, and are fatal in nearly 90% of those affected. The dengue fever viruses affect over 100 million people each year, with severe cases causing a hemorrhagic fever or shock syndrome or death. In response to these needs, we have developed a multivalent vaccine platform, based on the complex ad-vector vaccine platform (CAdVax), and have shown its efficacy in vaccines against some of the most dangerous infectious agents. There are many advantages of the CAdVax platform, but the most important one is its capacity of expressing multi-antigens *de novo* to induce immune responses by mimicking natural infection, but without causing any significant side effects. This makes the platform especially suitable for multivalent vaccines to protect against viruses of multiple subtypes. In animal studies, the CAdVax vaccines induce potent immune responses, 100% of the vaccinated animals, including non-human primates, survived challenge by multiple subtypes of Ebola, Marburg, or effectively suppressed viremia of all four types of dengue viruses. The same CAdVax platform has been applied to other viral agents, including the highly pathogenic influenza, West Nile Virus, and Rift Valley Fever virus. All theses vaccines induced portent immune response against their specific viral targets. These results demonstrated the broad application of the vaccine platform against lethal virus infections.

Biography

Dr. John Dong is President and CEO of GenPhar, Inc. Under John's leadership, GenPhar, Inc. has developed a unique vaccine platform and a number of multivalent vaccines against lethal viruses. John has established close collaborations with divisions of the Department of Defense (DoD) and National Institutes of Health (NIH). John's collaborations include: working with NIH to develop an HIV vaccine that induces both neutralizing and CTL responses; partnering with the US Army (USAMRIID) to develop a bivalent Ebola vaccine and a trivalent Marburg vaccine; and a joint effort with the US Navy (NMRC) to develop a tetravalent dengue vaccine against all four serotypes of the dengue virus. John has also been leading the effort to develop commercial applications of the platform, including hepatitis, Influenza, RSV and a West Nile virus vaccine.