



NEWS RELEASE

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Infectious Diseases
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CONTACT: Caree Vander Linden, USAMRIID (301) 619-2285
Elaine Krawchenko, PHAC (204) 789-5046

Experimental Vaccine Protects Nonhuman Primates When Given after Exposure to Marburg Virus

A team of U.S. and Canadian scientists has demonstrated the effectiveness of a vaccine in preventing the development of hemorrhagic fever in an animal model after exposure to the deadly Marburg virus. Their findings, published in the April 27 online edition of the British medical journal *The Lancet*, could have implications for human use.

Marburg virus was first detected in 1967 and was the cause of a large outbreak in Angola in 2004-2005 that resulted in several hundred deaths with case fatality rates of about 90 percent. Like the Ebola virus, Marburg is a filovirus that causes internal bleeding at multiple sites with patients usually dying as a result of multiple organ failure. Both viruses are considered to be potential agents of bioterrorism. Currently, no effective vaccines or drugs against Marburg virus exist, and treatment of the disease is limited to supportive care.

Investigators from the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) and the National Microbiology Laboratory at the Public Health Agency of Canada (PHAC) created the vaccine against Marburg virus by replacing a gene from a harmless virus—known as vesicular stomatitis virus, or VSV—with a gene encoding a Marburg virus surface protein.

The team infected five rhesus monkeys with the Marburg virus and then injected them with the vaccine (known as recombinant VSV, or rVSV) 20 to 30 minutes later. Another three monkeys infected with Marburg virus acted as controls and received a vaccine without the Marburg protein.

All of the monkeys treated with rVSV following exposure to the Marburg virus survived for at least 80 days, while the controls succumbed to the disease by day 12.

In a study published in June 2005, the research team reported that the rVSV vaccine could prevent Marburg hemorrhagic fever from developing when administered before infection. The new results suggest that the vaccine could also be an effective post-exposure treatment for the disease.

“These results are very encouraging, as this is the first demonstration of complete post-exposure protection of nonhuman primates against a filovirus,” said Thomas W. Geisbert, one of the USAMRIID investigators.

Colonel George W. Korch, Jr., commander of the Institute, added, “This outstanding collaboration has been instrumental in producing novel breakthroughs, such as this, for discovery of medical approaches for difficult public health and biodefense problems.”

PHAC’s National Microbiology Laboratory is Canada’s only Containment Level 4 laboratory, where pathogens such as Ebola and Marburg can be worked with safely. The Winnipeg-based laboratory has been at the forefront of research into SARS, West Nile virus, anthrax and other dangerous pathogens.

USAMRIID, located at Fort Detrick, Maryland, is the lead medical research laboratory for the U.S. Biological Defense Research Program, and plays a key role in national defense and in infectious disease research. The Institute’s mission is to conduct basic and applied research on biological threats resulting in medical solutions (such as vaccines, drugs and diagnostics) to protect the warfighter. USAMRIID is a subordinate laboratory of the U.S. Army Medical Research and Materiel Command.

References:

Kathleen M. Daddario-DiCaprio, Thomas W. Geisbert, Ute Stroher, Joan B. Geisbert, Allen Grolla, Elizabeth A. Fritz, Lisa Fernando, Elliott Kagan, Peter B. Jahrling, Lisa E. Hensley, Steven M. Jones, Heinz Feldmann. Postexposure protection against Marburg haemorrhagic fever with recombinant vesicular stomatitis virus vectors in non-human primates: an efficacy assessment. *Lancet* 2006; 367: 1399-404.

For more information about USAMRIID: www.usamriid.army.mil

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