



NEWS RELEASE

U.S. Army Medical Research Institute of
Infectious Diseases
Fort Detrick, Maryland

EMBARGOED FOR RELEASE:
Monday, June 27, 2005, **8:00 p.m. EDT**

Experimental Vaccine Protects Nonhuman Primates from Lassa Fever:
Findings Could Lead to Vaccine for Human Use

FREDERICK, Maryland and WINNIPEG, Manitoba—A team of U.S. and Canadian scientists has developed a vaccine against Lassa fever that fully protects nonhuman primates from experimental infection with lethal doses of Lassa virus.

The research, published in the online and print editions of the journal *PLoS Medicine*, could eventually lead to development of a vaccine for human use. Currently there is no preventive measure available to halt the spread of Lassa fever, other than rodent control in affected areas. The disease is transmitted to humans from rodents that carry the virus.

Lassa fever is common in parts of West Africa where it causes a significant amount of death and disability among the population. Recently, Lassa fever has been imported by travelers to the United States and Europe. The Lassa virus that causes the disease is considered a potential agent of bioterrorism.

Principal investigators Thomas Geisbert of the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) and Heinz Feldmann and Steven Jones of the Public Health Agency of Canada (PHAC) developed the vaccine using a non-pathogenic form of vesicular stomatitis virus, or VSV, as a carrier—into which they inserted genetic material from the deadly Lassa virus.

The team then immunized four rhesus macaques with a single dose of the Lassa vaccine, while two monkeys received only the VSV "carrier" virus. Four weeks later, all six animals were experimentally infected with a lethal dose of Lassa virus. The four vaccinated monkeys survived with no signs of clinical illness, while the two control animals died.

"This is the first vaccine platform shown to completely protect nonhuman primates from Lassa virus," said Dr. Geisbert. "We are hopeful that the VSV strategy, which we have successfully demonstrated for Marburg, Ebola and now Lassa virus, could have utility against other hemorrhagic fevers as well."

"Lassa fever poses a huge public health threat in Western Africa," said Dr. Feldmann of the PHAC. "While the mortality rate of this virus is not as high as with some viral hemorrhagic fevers, there are many more cases of Lassa fever and a great number of survivors are permanently affected by complications such as hearing loss, so this vaccine may have a much broader application."

- more -

A vaccine against the Lassa virus could help to control outbreaks of the disease in Africa and protect health care and laboratory workers. Previous attempts to develop Lassa vaccines were partially successful, but none completely protected nonhuman primates against lethal doses of the virus, according to the study's authors.

"The demonstration of an effective vaccine against a hemorrhagic fever virus, such as Lassa, represents a significant leap forward in our hope for safe and efficacious vaccines for the full spectrum of potential biological threats," said Colonel George W. Korch, Jr., USAMRIID commander.

"This is the second time these scientists have worked together for the advancement of public health, which is a testament to their dedication and the value of collaboration across borders," said Canadian Health Minister Ujjal Dosanjh, referring to the scientists' work on Ebola and Marburg.

Carolyn Bennett, Minister of State (Public Health) added, "Relationships like this enhance science and are a credit to the organizations involved."

While these early results are promising, further testing will need to be conducted. Some issues that must be resolved before the vaccine can be tested in humans are the safety of the VSV virus, how long the vaccine protects after the shot, and whether it is active against different genetic strains of the Lassa virus.

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.

PHAC's National Microbiology Laboratory operates a Containment Level 4 laboratory where pathogens such as Ebola and Lassa virus 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.

- 30 -

Reference: Geisbert TW, Jones S, Fritz EA, Shurtleff AC, Geisbert JB, Liebscher R, Grolla A, Stroher U, Fernando L, Daddario KM, Guttieri MC, Mothe'BR, Larsen T, Hensley LE, Jahrling PB, Feldmann H. (2005) Development of a new vaccine for the prevention of Lassa fever. PLoS Med 2(6): e183.

Funding Sources: Canadian Institute of Health Research and the Medical Chemical/Biological Defense Research Program and Military Infectious Diseases Research Program, U.S. Army Medical Research and Materiel Command

Media Inquiries:

Kelly Keith
Public Health Agency of Canada
(204) 789-5028

Caree Vander Linden
USAMRIID
(301) 619-2285