

New vaccine strategies could safely control Rift Valley fever

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Two new approaches could form the basis for the first-ever human vaccine for Rift Valley Fever (RVF), an infectious disease that threatens both farm animals and people, say researchers at the University of Pittsburgh Center for Vaccine Research. Reported in this week's *PLoS Neglected Tropical Diseases*, experimental vaccines developed with these approaches produced strong immune responses in mice and may be safer than the only available RVF vaccine, which is limited to animal use.

Although RVF mainly affects farm animals, the [virus](#) has spread to human populations causing serious illness and death in several regions in Africa and the Middle East. Additionally, it has been classified as a select agent by the U.S. federal government because of its potential use in biowarfare, prompting [vaccine development](#) research.

"RVF is a veterinary and public health threat that continues to spread," said Ted M. Ross, Ph.D., lead author of the study and associate professor, University of Pittsburgh Center for Vaccine Research. "At the same time, vaccine development has been challenging because of adverse side effects from live virus vaccines and uncertainty about whether the virus could revert to a more dangerous form during vaccine manufacturing."

Unlike other potential vaccines for RVF, which are derived from live viruses, the vaccines tested by Pitt and University of North Carolina researchers were developed using two approaches—DNA and alphavirus replicon-based—that use only a modified portion of an inactivated virus.

Mice immunized with either strategy were protected from disease and death when directly exposed to the pathogenic virus. When the strategies were combined, researchers noted both increased concentrations of antibodies that neutralize infectious agents and heightened cell-based immune responses.

"These [vaccine](#) strategies may be advantageous to controlling RVF because they provide a safer alternative and appear to work as well as live virus vaccines," said Dr. Ross.

Provided by University of Pittsburgh

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