

Vaccine proves effective against deadly Middle East virus

15 September 2014, by Allison Hydzik

(Medical Xpress)—A vaccine developed by an international team of scientists led by the University of Pittsburgh School of Medicine successfully protects mice against a contagious and deadly virus spreading across the Middle East. The vaccine is a promising candidate for immunizing camels, thought to be the source of human infection.

Details of the new immunization against Middle East Respiratory Syndrome (MERS) are published online and will appear in an upcoming issue of the journal *Vaccine*.

"MERS poses an emerging threat worldwide and has infected people in several Middle Eastern countries, with some unwittingly bringing the virus to other countries, including the U.S., through air travel," said senior author Andrea Gambotto, M.D., an associate professor in Pitt's Department of Surgery. "However, scientists now believe that by vaccinating camels against MERS, we may be able to reduce transmission to humans and stave off the spread of this [deadly virus](#)."

There have been 837 cases of MERS confirmed to date, including 291 deaths. According to the World Health Organization, symptoms include fever, cough and shortness of breath, with respiratory failure in severe illnesses. However, some people can be infected and show no symptoms, despite being contagious and spreading the virus to others.

Strains of MERS that match human strains have been isolated from camels in the Middle Eastern countries where MERS is spreading. Camels are an important animal in the Middle East and are used for transportation and as a food source.

Dr. Gambotto and his colleagues created a vaccine that encodes for a characteristic protein found on the surface of the MERS virus. The vaccine primes the immune system to detect the protein and fight

the virus.

The team injected mice with the vaccine and gave them boosters through the nose three weeks later. All the immunized mice had antibody responses against the MERS protein.

"Since this vaccine is effective in mice, we believe it warrants testing in camels so we can determine if they have a similar immune response," said Dr. Gambotto. "If we can protect [camels](#) against MERS, we may make it so difficult for MERS to infect people that its threat to the human population is significantly diminished."

Provided by University of Pittsburgh

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