

Mutant gene link to West Nile virus in horses

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The same mutated gene that makes humans more susceptible to the potentially fatal West Nile virus is also responsible for the virus affecting horses, according to scientists at the University of Adelaide, Australia.

A naturally occurring mutation of the OAS1 gene has now been confirmed as increasing the vulnerability of horses to the [West Nile virus](#), thanks to a study led by Professor David Adelson (University of Adelaide) and conducted by PhD student Jonathan Rios (Texas A&M University).

The results of the study were published last month in the online peer-reviewed science journal [PLoS One](#).

West Nile virus causes inflammation of the brain and spinal cord, resulting in paralysis and death in humans, horses, birds and other species.

"Horses have been seriously affected by the West Nile virus, especially in North America where vaccinations, treatments and the loss of horses have cost countless millions of dollars to horse owners, industry and the community," says Professor Adelson, who is Professor of Bioinformatics and Computational Genetics at the University of Adelaide's School of Molecular & Biomedical Science.

"The OAS gene cluster in horses most closely resembles that of humans. Because previous research had already identified mutations of OAS1 as

playing a key role in the vulnerability of mice and humans to the West Nile virus, we felt it was worth investigating this potential link in horses.

"These genetic mechanisms seem to be playing a similar role in humans and horses in terms of allowing the West Nile virus to take its hold on the body.

"We believe this discovery will be of great interest to horse owners and those involved in controlling the spread of the virus. Knowing that a mutated OAS1 gene is playing a key role in this problem, valuable [horses](#) could be screened to check for the presence of the mutation and therefore susceptibility to the virus," Professor Adelson says.

According to the Centers for Disease Control and Infection, in 2009 there were 720 reported human cases of West Nile virus across the United States, including more than 30 deaths.

The virus has been found in Africa, Europe, the Middle East, Asia and Oceania as well in North America. Australia remains free of the virus at this stage.

More information: www.cdc.gov/ncidod/dvbid/westnile/

Provided by University of Adelaide

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