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New approach to tackle alphavirus infections

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Griffith University and an international team of researchers have moved a step closer to identifying a broad spectrum treatment for the dreaded arthritogenic alphavirus infections.

The threat of a global alphavirus pandemic remains high, in particular from highly aggressive strains such as Chikungunya virus, and has emphasised the continued need for therapeutic strategies to combat these deadly viruses.

These mosquito-transmitted viruses are responsible for thousands of hospitalisations and deaths throughout the world. Alphaviruses cause endemic disease and, occasionally, large epidemics; for instance, the 2004-2011 chikungunya epidemic resulted in 1.4-6.5 million cases, with imported cases reported in nearly 40 countries. Alphaviruses include about 30 pathogens spread by mosquitoes, also including Ross River virus and Barmah Forest virus that cause persistent arthritis.

Professor Suresh Mahalingam, a Principal Research Leader at Griffith University's Institute for Glycomics, said research findings published in the international journal *PLoS Pathogens* this week demanded a total rethink of how these viruses work.

"Alphaviruses are transmitted to human after an infectious bite by the mosquitoes. These viruses infect the host cells and replicate rapidly, causing illness," he said.

"The rising prevalence of arthritogenic alphavirus infections and the lack

of treatments highlight the potential threat of a global alphavirus pandemic."

"The team has for the first time shown that the protein pentraxin 3 (PTX3) plays a crucial role in promoting alphavirus infection and disease. These findings were quite unexpected because, until now, PTX3 was only known to protect against virus infection. This new discovery paves the way to improved vaccine and drug development. This would have a significant global impact.

The end game is to have a number of drugs available that can tackle these viruses."

Provided by Griffith University

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