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Researchers make West Nile vaccine breakthrough

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University of Queensland researchers have made a giant leap forward in the race to develop a vaccine for the potentially debilitating West Nile virus.

Associate Professor Alex Khromykh, from UQ's School of Molecular & Microbial Sciences, and colleagues have found a way to generate immune response levels comparable to a live virus vaccine, which could also help suffers of other disease such as dengue fever and Japanese encephalitis.

“What this means is that our prototype vaccine has the potential to not only be safer but just as effective as live vaccines,” Dr Khromykh said.

Dr Khromykh said West Nile virus was an emerging virus causing outbreaks of viral encephalitis in Europe and the USA.

“According to a US Center for Disease Control report, West Nile virus caused more than 27,000 cases of reported infection and more than 1000 deaths in the USA alone since its emergence in 1999,” he said.

“A vaccine is desperately needed and while a number of vaccine candidates are currently in development, none have yet been approved for human use. Following this research we hope to move on to pre-clinical and clinical trials of the vaccine.”

He said the vaccine they were developing – called pKUNdC/C – was

what is known as a DNA vaccine, which is safer, purer and more stable than other vaccines prepared using traditional approaches, such as attenuated live virus vaccines.

“Live virus vaccines are usually more potent though and provoke a greater response from the immune system,” he said.

“The results we are getting show that pKUNdC/C not only has the benefits of a DNA vaccine but combines the potency of a live virus vaccine as well.

“These findings are important not only for the vaccine development against West Nile virus, but also against other highly pathogenic viruses from the same virus genus which includes dengue, tick-borne encephalitis and Japanese encephalitis viruses.”

Source: Research Australia