Breakthrough for S’pore researchers working on dengue vaccine

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Singapore dengue researchers have made a key breakthrough in the race to find a working vaccine.

The scientists believe they have uncovered a way to prevent all four strains of the virus from "hiding" from the body's immune system.

Their discovery comes as pharmaceutical giant Sanofi prepares to launch its own vaccine by 2015. However, the French firm has so far managed to provide immunity against only three strains.

By contrast, the Singapore vaccine could eventually protect all sufferers.

Promisingly, tests on monkeys have found it is fully effective against Den-1 and Den-2. These two strains are most responsible for this year's epidemic, which has infected more than 14,000 people and killed five. Tests on the remaining two forms of the virus will be complete by the end of the year, with scientists quietly confident about the outcome.

The vaccine works by deactivating an enzyme that allows the dengue virus to evade the immune system. This causes the body to produce antibodies, protecting it against future infections.

"If (animal tests on Den-3 and Den-4) are successful... then I will be very confident," said Dr Katja Fink, who led the research by the Singapore Immunology Network.

One advantage of the vaccine is that it closely resembles the virus, helping the patient's immune system to develop resistance.

"In previous approaches they made very artificial constructs... which might then not be as efficient," said Fink.

Her team, which is part of the Agency for Science, Technology and Research, made the breakthrough with the help of the Novartis Institute of Tropical Diseases and the Beijing Institute of Microbiology and Epidemiology.

Its findings were published this month in the journal PlosPathogens. Clinical trials could begin by the end of next year, but Fink pointed out that it could take many years for a safe, working vaccine to be approved.

Communicable Diseases Centre clinical director Leo Yee Sin said: "We are into the seventh decade of dengue vaccine development. This indeed is an exciting breakthrough."

Sanofi's vaccine has so far been unable to immunise against Den-2. Clinical trials found it to
have 60 to 90 per cent efficacy against the other three strains. It is nearing the end of tests and is expected to be launched within the next two years.

Dengue is the world's fastest spreading tropical disease, infecting up to 100 million people a year, according to the World Health Organisation.
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