

New gene-level approach to fighting chikungunya

NUS team identifies sequence that stops virus replicating, destroys it

By **ANDREA ONG**

RESEARCHERS from the National University of Singapore are bringing the fight against chikungunya down to the genetic level.

The four academics from the Yong Loo Lin School of Medicine have developed a new way of fighting the viral disease that causes intense joint pain.

They successfully identified a genetic sequence – called “small-hairpin RNA” for its

shape – which stops the chikungunya virus from replicating, before going on to destroy it.

This is believed to be the first time small-hairpin RNA, more commonly used in cancer therapy, has been used in antiviral procedures in Singapore.

The team’s findings were published yesterday in international scientific journal PLOS ONE. Lead researcher and post-graduate student Shirley Lam, 23, won the Singapore Young Scientist Award for her work at

the Singapore Health and Biomedical Congress last month.

Using small-hairpin RNA to stop the virus from reproducing is one method of gene silencing, explained principal investigator Justin Chu, an assistant professor at the Yong Loo Lin School of Medicine.

This technique, which stops the gene from “talking” by switching it off, is becoming an increasingly important medical technology field, said Dr Chu.

The team’s method killed off the chikungunya virus within three days and protected cells for up to 15 days. This means it could potentially be used as a preventive measure as well as an antiviral treatment.

Chikungunya, which is spread by the Aedes mosquito, has no vaccine or cure. Treatment focuses on relieving the symptoms, which include fever and severe joint pain that can last for months or even years.

More than 1,000 cases were recorded in Singapore between 2008 and 2010. There were 12 last year, and nine recorded over the past nine months.

The new method has been tested on human cells and animals. The team hopes to start clinical trials once it secures funding. Dr Chu hopes the method can one day protect Singaporeans travelling to places where the virus is prevalent.

✉ andrea@sph.com.sg