

Test kit to differentiate mozzie viruses

It can stop dengue virus being mistaken for chikungunya

Carolyn Khew

Researchers here have developed a diagnostic kit that can differentiate between the dengue and chikungunya viruses in a single test.

The kit devised by a team from Republic Polytechnic (RP) and the National University of Singapore (NUS) can help prevent one virus from being mistaken for the other.

Patients with dengue and chikungunya tend to exhibit similar symptoms such as fever and headache during the initial stages of infection, even though chikungunya is typically non-fatal.

“Due to common transmission mosquito vectors and similar clinical symptoms, chikungunya and dengue viruses can be misdiagnosed in areas where both viruses are co-circulating,” said Assistant Professor Justin Chu of Yong Loo Lin School of Medicine at NUS, a member of the research team. “This may lead to poor patient management at the point of care,” he said.

By identifying the melting temperature of the viruses’ genetic material, researchers developed a kit that can tell the viruses apart.

The kit can also detect the den-

gue serotype with high accuracy.

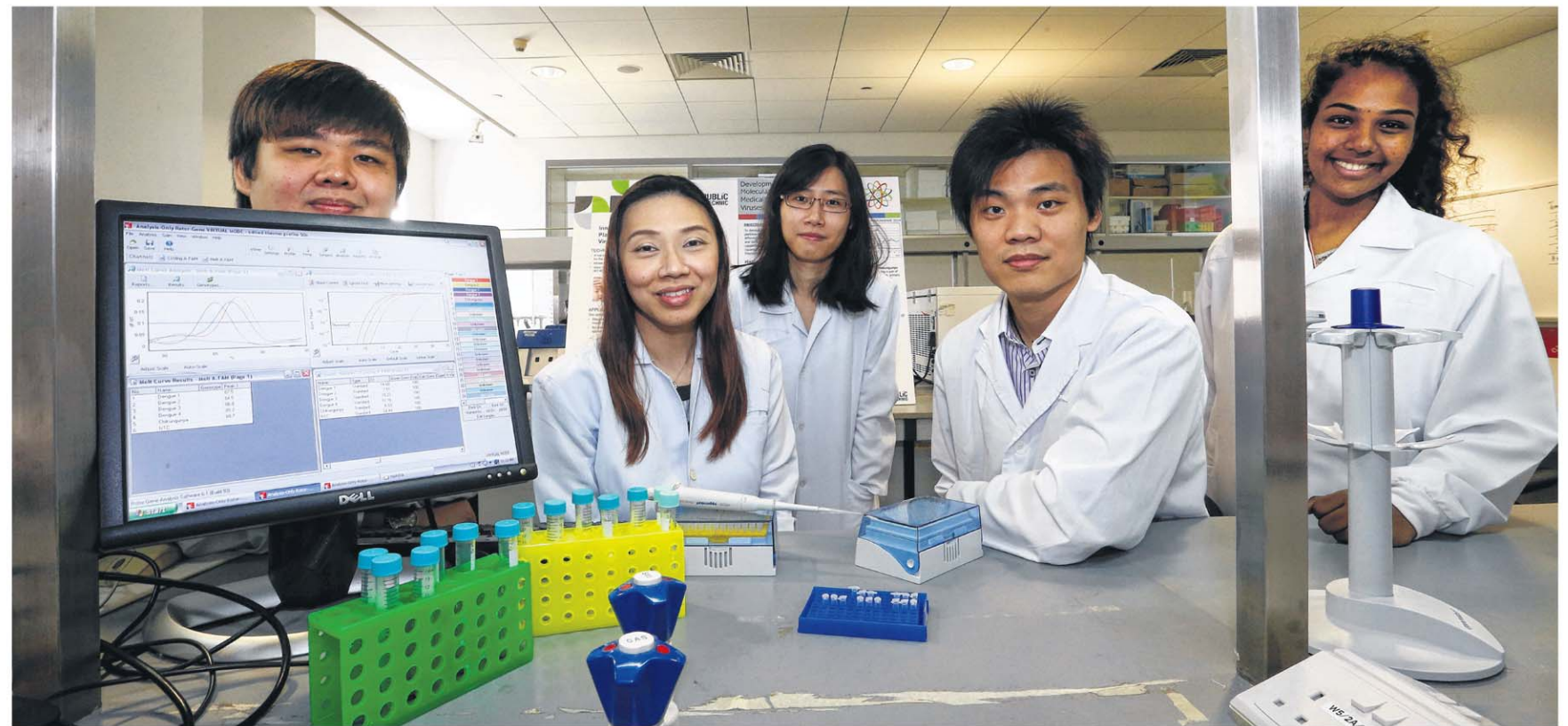
“Serotyping information is important for the understanding of dengue epidemiology,” said Dr Chu. “For instance, dengue serotype switch is used as an early warning of epidemics in Singapore as data has shown such switches to be associated with epidemics.”

In Singapore, the most common dengue strains are DENV-2 and DENV-1.

It was earlier reported that the proportion of serotype 2 cases rose from 18.3 per cent last year to around 44 per cent as of mid-May this year, sparking concerns that it may replace serotype 1 to become the dominant strain, leading to a spike in dengue cases.

For the study published recently in *The Journal Of Molecular Diagnostics*, researchers collected about 250 clinical samples of chikungunya and dengue viruses from local hospitals. They observed the melting temperature at which copies of the viruses’ genetic material were made during a polymerase chain reaction (PCR). The PCR technology can be used for disease diagnosis, among other things.

The study’s principal investigator, Dr Ho Phui San of the school of



The team that collaborated on the project to develop the diagnostic kit included (from left) Mr Ivan Foo Zhi Kwee, 20; Dr Ho Phui San, 37; Miss Dawn Tan Yu Bin, 21; Mr Chen Huixin, 28; and Miss Mariya Parimelalagan, 22. ST PHOTO: CHEW SENG KIM

applied science at RP, said some of the kits in the market rely on antibodies, which have limitations.

“The immune system in our body takes time to react to a particular virus upon infection and to produce antibodies specific to that virus.

“Hence, antibody-based detection is applicable only around five

to seven days after the onset of fever as antibodies specific to dengue virus are usually produced during that period,” she said. The team is in talks with biotechnology companies to see how the kit can be commercialised, she added.

The number of chikungunya cases from January to July 25 this year

is 21, compared with 165 in the same period last year. A total of 294 dengue cases were reported in the week ending July 25 – the most weekly cases so far this year, going by the National Environment Agency website.

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