



Singapore scientists develop blood test kit to detect immunity against COVID-19 in 10 minutes

The serology test, which is up to 93 per cent accurate, paves the way for personalised vaccination strategies where people are vaccinated or given booster shots when necessary, said the scientists.

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Ang Hwee Min

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Test kits and the digital reader device that can detect levels of COVID-19 antibodies from a drop of blood. (Photo: NTU)

SINGAPORE: A team of scientists in Singapore has developed a blood test kit that can tell if a person has immunity against COVID-19 in 10 minutes, with up to 93 per cent accuracy.

The kit was developed by a team from the Singapore-MIT Alliance for Research and Technology (SMART) and Nanyang Technological University (NTU). SMART is the Massachusetts Institute of Technology's research enterprise in Singapore.

The kit requires a drop of blood and can detect if a person has antibodies against SARS-CoV-2 – the virus that causes COVID-19 – in 10 minutes, compared with 24 to 72 hours needed for conventional laboratory testing, said SMART and NTU in a joint news release on Thursday (Sep 22).

The test kit can be “easily adapted” for new variants of concern and other diseases in the future, the scientists said, describing the test as “low cost”.

The test can be administered by a person without medical training and does not require any specialised laboratory equipment. This will pave the way for "large-scale testing of vulnerable subsets of the population", such as the elderly, said the news release.

The test kit detects COVID-19 immunity based on the antibodies detected in the blood sample, the scientists said. This is different from antigen rapid test kits, which look for the presence of viral proteins produced during COVID-19 infection.

Based on the antibodies detected in the test, this can inform a person about how cautious they should be about potential infection before a booster, and when a booster should be taken.

“It paves the way for personalised vaccination strategies, where people are only given vaccinations and booster shots when necessary, depending on their variance in antibody levels and immune response,” the researchers said.

As of Tuesday, 93 per cent of Singapore’s population has completed the full vaccination regimen. About 80 per cent of the total population has received a booster shot.

Further development of the test kit is underway to meet necessary regulatory approvals and manufacturing standards for public use, said SMART and NTU.

The team at SMART that worked on the test kit has set up a start-up named Thrixen, which is developing the test into a commercially ready product.