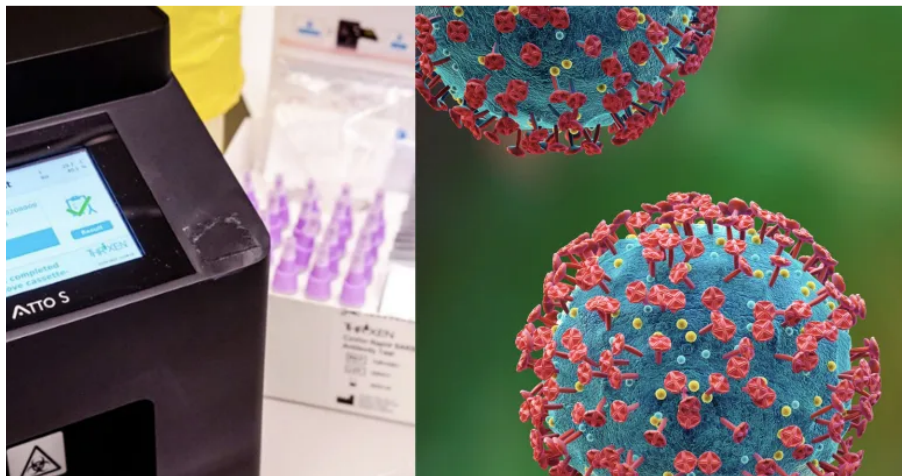


Singapore-made COVID test kit can show antibody level within 10 minutes



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COVID-19 antibodies test kits (right) and the digital reader device (left in black), which can detect levels of COVID-19 antibodies from a drop of blood in just ten minutes. (PHOTOS: NTU Singapore, Getty Images file photo)

SINGAPORE — Singapore scientists have developed a test kit that can tell if a person has immunity against COVID-19 and its variants within 10 minutes and determine whether a booster dose is required.

The low-cost kit, developed by scientists from Singapore-MIT Alliance for Research and Technology (SMART) and Nanyang Technological University (NTU), is up to 93 per cent accurate and uses a paper-based assay coated with chemicals that bind to antibodies in a blood sample.

With a drop of blood, the test kit can quickly evaluate an individual's antibody level against a specific COVID-19 variant, compared with about 24 to 72 hours required for conventional laboratory testing, said SMART and NTU in a media statement on Thursday (22 September).

This paves the way for more targeted vaccination strategies, where people are only given vaccinations and booster shots when necessary, depending on the variance in antibody levels and immune response.

The low-cost tool can enable large-scale testing and be widely deployed, the statement said.

The findings were published in the scientific journal *Microbiology Spectrum* by the joint team led by SMART's Antimicrobial Resistance Interdisciplinary Research Group and NTU's School of Biological Sciences, in collaboration with the National University Hospital and National Centre for Infectious Diseases, and Massachusetts Institute of Technology.

The study by the joint research team has shown that the protection offered by currently available vaccines steadily declines over three months, with varying degrees of decline across individuals.

After three months of a booster shot, the neutralising antibody (NAb) response against various viral strains for wildtype, which is naturally occurring and non-mutated, and Delta fell to about 91.8 per cent, compared with 82.7 per cent against Beta and Gamma and 70.7 per cent against Omicron, according to the study.

Hoi Lok Cheng, the study's co-author and former postdoctoral associate of the SMART team, said, "This is an exciting breakthrough for us, and a continuation of our long-running work to develop efficient, low-cost, and easy-to-use NAb tests to combat the COVID-19 pandemic."