

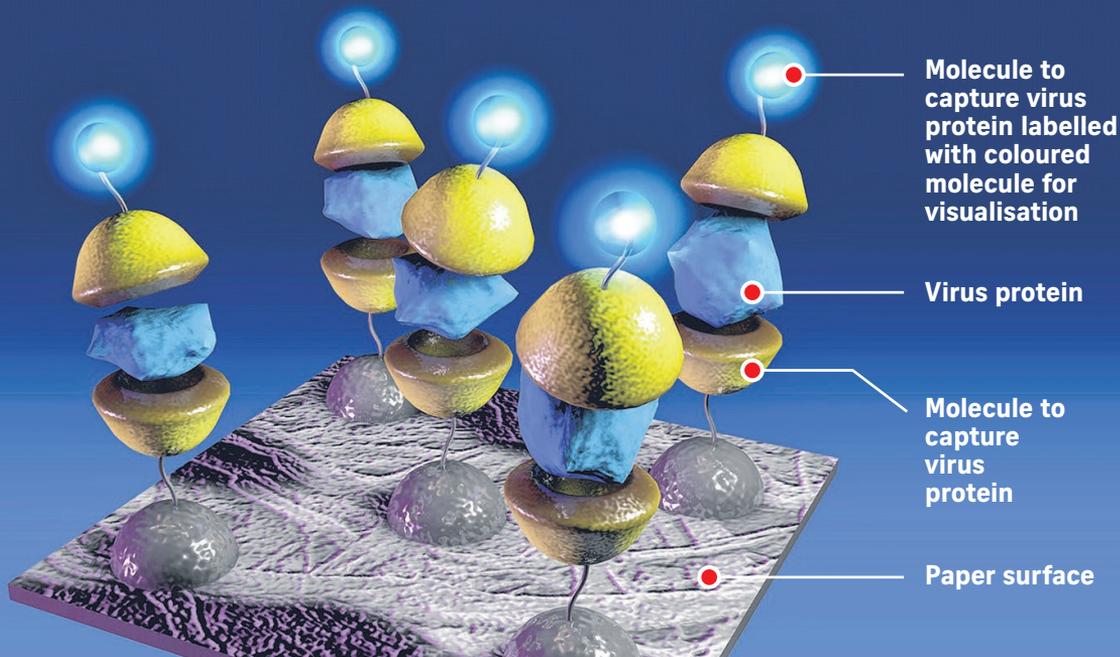
How one rapid Covid-19 diagnostic test works

Researchers at the Nanyang Technological University (NTU) and the Singapore-MIT Alliance for Research and Technology (Smart) are developing a paper-based Covid-19 test that could be as fuss-free as a pregnancy test kit, yielding results in 10 minutes. It usually takes about a day to get results using current testing methods.

HOW IT WORKS

- 1
 - The test kit is made of paper coated with molecules that "recognise" Sars-CoV-2 proteins in a clinical sample.
 - If the viral proteins are detected, the paper strip changes colour from white to blue.

- 2
 - A key difference between this work-in-progress test and current tests using a technique called polymerase chain reaction (PCR) is the part of the virus that is being detected.



- 3
 - Sars-CoV-2, which is the name of the virus that causes Covid-19, comprises a single-stranded genetic material known as RNA, as well as proteins.

- A PCR test detects the RNA of the virus, whereas the test that NTU and Smart researchers are developing detects the proteins of the virus.

- 4
 - The principle behind this protein test is to use the coated paper to capture all the viral proteins in a sample and then detect this captured protein via a visual read-out.

- Scientists had to develop molecules that could be very specific about "recognising" the viral proteins, so that false positives do not occur due to other proteins in blood or other samples.

- They also had to identify molecules that could be used to flag the viral proteins that are captured, which causes the test kit to change in colour.

Negative (no virus) sample



Positive (with virus) sample

