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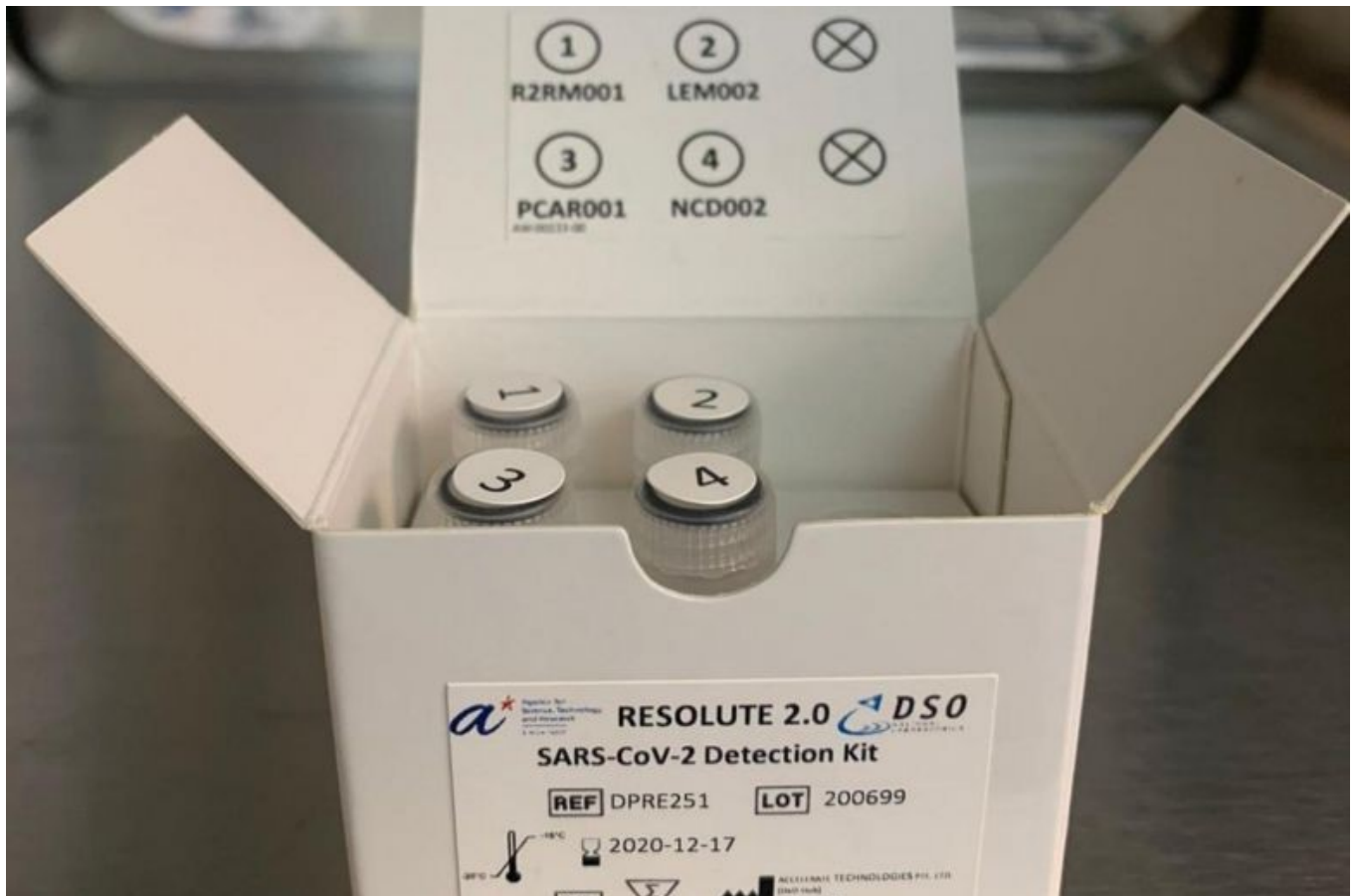
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New Covid-19 test kit by DSO and A*Star cuts testing time by half



The Resolute Covid-19 test kit developed by DSO National Laboratories and A*Star can deliver test results in about 1.5 hours.
PHOTO: A*STAR

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SINGAPORE - Scientists here have developed an improved Covid-19 test kit that can deliver results more quickly - halving processing time from about four hours to less than two.

With earlier results, patients can be given medical treatment more quickly if needed.

The new kit also uses fewer raw materials that are limited in supply during the pandemic.

The direct standard polymerase chain reaction (PCR) test, called Resolute, is a joint effort by DSO National Laboratories and the Agency for Science, Technology and Research (A*Star). It was announced on Saturday (July 18).

Unlike the standard PCR test, Resolute cuts out the time-consuming processing of swab samples taken from patients. Tests can be conducted with a basic laboratory set-up and entry-level technicians, and the process is also safer for technicians, as exposure is reduced.

A PCR test detects the presence of viral genetic material from a sample taken from a patient, such as from the nose or back of the throat. It is the main test used for community testing.

Analysis by a PCR machine can take about an hour.

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But before this, in the standard test, the sample must first be processed. This entails mixing the sample with reagents, and several rounds of "washing" with reagents to extract genetic material called ribonucleic acid (RNA).

This can take up to three hours. The extracted RNA is then added to a reaction solution before it is analysed.

Resolute, in contrast, entails adding the patient's sample to a specially formulated pre-mixed solution, before it is placed into the PCR machine for analysis. Test results can be expected in 60 to 90 minutes.



The cost of each Resolute kit is expected to be competitive with standard PCR test kits.

"The cost savings come from the manpower and resources required from RNA extraction. This reduces material and manpower costs, as well as time," said Ms Ng Sock Hoon, laboratory director of the verification and attribution laboratory at DSO.

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- > Resolute received provisional authorisation from the Health Sciences Authority in April. The Diagnostic Development Hub, a national platform hosted by A*Star, is working with a local medtech company to produce and deploy it.

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- > The collaboration on Resolute was part of a strategic partnership between DSO and A*Star that was inked earlier this year. It was the first time both organisations have come together to develop a product for public health needs.

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- > A*Star's chief executive Frederick Chew said that Resolute was a vital addition to Singapore's testing capacity.

"The Diagnostic Development Hub crew has been working with a stellar DSO team to rapidly turn around a product for deployment, reducing our national testing dependence on RNA extraction reagents."

DSO has been building up strategy capabilities to deal with novel outbreaks, said its chief executive Cheong Chee Hoo.

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- > "It is timely that we are able to work closely with A*Star and industry partners to quickly develop and productise this capability into an effective test kit in less than three months to strengthen Singapore's fight against Covid-19."

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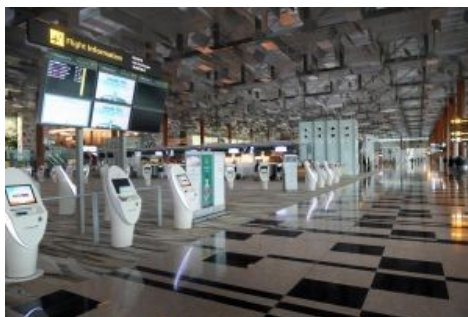
management for the Diagnostics Development Hub at A*Star, said the team is working on scaling up production of Resolute test kits. It is also working with healthcare providers in Singapore and overseas to deploy it.

"It allows diversification of test kits available for Singapore, and that diversifies the raw material needs as well. This increases our resilience in the fight against Covid-19."

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