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ASIA EDITION

Singapore launches cPassÃ¢â??Â¢ Surrogate Virus Neutralisation Test (sVNT) kit

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A novel species-independent test kit to screen antibodies derived from human or animal sources



Singapore has launched a novel serological test "cPass™, or the surrogate virus neutralization test to detect the novel coronavirus (COVID-19) infection. The test kit is co-developed and manufactured through an exclusive agreement between Duke-NUS Medical School, GenScript and the Diagnostics Development Hub (DxD) at Singapore's Agency for Science, Technology and Research (A*STAR).

cPass™ is the first SARS-CoV-2 surrogate virus neutralisation test (sVNT) kit that is capable of measuring functional neutralizing antibodies (NAbs). NAbs are the specific antibodies present in the serum of COVID-19 patients that are responsible for clearing/ blocking/neutralising the viral infection. NAbs are well established biomarkers for protein in most viral infections. Therefore, the sVNT kit is a better measure for potential resilience to re-infection.

The cPass™ test uses the viral protein-receptor protein interaction to mimic the virus infection of a live cell, which is monitored by a colour reaction. When there are neutralising antibodies in the patient sera, they will block the specific protein to protein interaction and hence reducing the colour reaction, mimicking the virus neutralization process.

The test has been validated with two COVID-19 patient cohorts in Singapore and China, achieving 100% specificity and 95-100% sensitivity.

Differential factors

The cPass™ kit can test rapidly within an hour in most research or clinical labs and is also amenable to high throughput and fully automated testing after minimal adaptation. It does not require a biosafety containment facility, which makes it immediately accessible to the global community, including many developing nations.

Here is how cPass™ kit results interpret the test results.

- If the test gives a positive result, it means the person most likely has been infected by the virus in the past and has generated good immunity against the virus. This will assist in determining the level of “herd immunity”.
- This kit can detect animal intermediate hosts of COVID-19.
- Identifies donor's functional neutralization antibodies to be a qualified volunteer for plasma donation
- Determines a vaccine's ability to generate NAbs in vaccinated population, and to measure the presence of blocking antibodies
- Screens therapeutic antibodies blocking the interaction between RBD and ACE2

The cPass™ test is already available for in vitro diagnostics use in Singapore and has obtained the provisional authorisation by Singapore’s Health Science Authority, the national regulatory authority in Singapore for health products and validated by DxD Hub of A*Star.