

SARS-CoV-2 surrogate virus neutralization test: From bench to discovery at bedside and in the field



Dr Tan Chee Wah

16 August 2022 (Tuesday) **All are welcome!**

12:00 Noon – 1:00 PM

Registration starts from 11:30 AM

Venue: MD7 Seminar Room Level 1

Chairperson: Associate Prof Sylvie Alonso

Abstract:

Neutralizing antibody (NAb) levels are highly predictive of immune protection from symptomatic infection and severe disease. Evaluation of SARS-CoV-2 specific NAb by conventional live-virus neutralization test is tedious, time-consuming, and required a high biocontainment laboratory. Here, we describe the establishment of a simple SARS-CoV-2 surrogate Virus Neutralisation test (sVNT) and how sVNT was used to understand the SARS-CoV-2 Omicron emergence and the key breakthroughs that led to the discovery of a vaccination strategy that elicits pan-sarbecovirus NAb.

Learning points:

1. Design and operation of SARS-CoV-2 surrogate virus neutralization test (sVNT): from single plex assay to a highly multiplex platform
2. Multiplex sVNT and its application: from understanding the emergence SARS-CoV-2 Omicron to the discovery of the super-immunity in BNT162b2-vaccinated SARS survivors
3. Application of sVNT beyond human populations: from surveying SARS-related CoVs in bats to monitoring spillback of SARS-CoV-2 into different animals

Biography:

Dr. Tan Chee Wah obtained his Ph.D. from the University of Malaya in 2014, on enterovirus A71-host interactions. In 2017, he joined Professor Wang Linfa 's lab, mainly working on bat-borne viruses, including bat filoviruses, coronaviruses, and orthoreoviruses. During the COVID-19 pandemic, his focuses were on SARS-CoV-2 serology, origin, and virus-host interaction. He led the invention of the SARS-CoV-2 surrogate neutralization test, which was commercialized by Genscript under the trade name cPass™ and was the first serology test for SARS-CoV-2 neutralizing antibodies (NAb) that was granted US FDA EUA approval. Since then, he has established a sophisticated multiplex sVNT, which can detect NAb against SARS-CoV-2 variants of concern and other SARS-related coronaviruses that use ACE2 receptors. His recent works generated great impact with publications in New England Journal of Medicine, Nature Biotechnology, Lancet Infectious Diseases, and Nature Microbiology.