



# NCID MONTHLY RESEARCH MEETING

*BRINGING PEOPLE TOGETHER,  
BRIDGING SCIENCE AND MEDICINE*

**16 Sep 2022 | Friday | 11.00am – 12.00pm**

## About the Meeting

Our research meetings are held every 3<sup>rd</sup> Friday of the month, with the aim to:

- 1) Inspire research ideas and participation
- 2) Provide guidance on research studies
- 3) Foster research collaborations

## Who should attend

All who are interested in research are welcome to attend.

## To register

This will be a Zoom meeting. Register [here](#) or scan the QR code below.



CME/CPE points will be awarded

## Programme

**11:00 AM Studying COVID-19 with Human Airway Organoids**

**Dr Louisa Chan**

Dean's Postdoctoral Fellow  
Lee Kong Chian School of Medicine,  
Nanyang Technological University

**11:30 AM Secreted Dengue Virus NS1 is Predominantly Dimeric and in Complex with High-density Lipoprotein**

**Dr Alvin Chew**

Dean's Postdoctoral Fellow  
Lee Kong Chian School of Medicine,  
Nanyang Technological University

*5 to 10 mins Q&A will follow after each talk*



## Studying COVID-19 with Human Airway Organoids

by **Dr Louisa Chan**

Dean's Postdoctoral Fellow

Lee Kong Chian School of Medicine, Nanyang Technological University

Human airway organoids, which can self-renew and recapitulate various physiology of the respiratory system, serve as powerful platforms to model COVID-19. SARS-CoV-2 infected, replicated, and induced proinflammatory responses in organoids derived from human nasopharynx and bronchus.

### Learning Points

1. Organoids are miniaturized in vitro models that are derived from stem cells or adult tissues extracted from patients or healthy individuals in a specific three-dimensional microenvironment.
  2. Airway organoids highly mimic the polarized pseudostratified airway epithelium demonstrating the presence of basal, club, ciliated and goblet cells.
  3. Human airway organoids are permissive to SARS-CoV-2 infection.
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## Secreted Dengue Virus NS1 is Predominantly Dimeric and in Complex with High-density Lipoprotein

by **Dr Alvin Chew**

Dean's Postdoctoral Fellow

Lee Kong Chian School of Medicine, Nanyang Technological University

Severe dengue infections are characterized by endothelial dysfunction shown to be associated with the secreted nonstructural protein 1 (sNS1), making it an attractive vaccine antigen and biotherapeutic target. In this talk, I will review the current understanding of the sNS1 and share about our results of the biologically relevant cryoEM structures of sNS1 purified from infected cells.

### Learning Points

1. CryoEM structures of secreted dengue virus NS1 protein reveal dimers in complex with high-density lipoprotein.
2. Changes the popular view of secreted NS1 as a hexameric complex.
3. Broad implications to the molecular pathogenesis of dengue NS1 and clinical interventions.