



NCID MONTHLY RESEARCH MEETING

*BRINGING PEOPLE TOGETHER,
BRIDGING SCIENCE AND MEDICINE*

21 Feb 2025 | Friday | 11.00am – 12.00pm

About the Meeting

Our research meetings are held every third Friday of the month, with the aim to:

- Inspire research ideas and participation
- Provide guidance on research studies
- Foster research collaborations

iCDA Catalyst Grant[^]

The Catalyst Grant encourages inter-institutional collaborative research in infectious diseases and public health. It is awarded to new Principal Investigators and researchers from academic institutions and hospitals.

iCDA Short Term Fellowship (STF)[^]

The Short Term Fellowship encourages infectious disease researchers who have demonstrated current active research, to either host potential international collaborators/experts in Singapore, or be hosted on a research training attachment, at a leading infectious diseases institution overseas.

11:00 AM **Establishing a 3D lung slice model (PCLS) for Singapore**
Dr Cheong Hui Juan Dorothy

11:15 AM **Neutrophil hyperinflammation in uncontrolled DM drives tissue destruction in human pulmonary TB**
Dr Thong Pei Min

11:30 AM **Antimicrobial coating to prevent implant-associated infections**
Asst Prof Andy Tay Kah Ping

11:45 AM **Establishment of a novel human airway organoids and immune cell co-culture model system to assess human coronavirus infection**
Dr Louisa Chan

To Register

Visit <https://for.sg/feb25researchmeeting> or scan QR code.

This will be a Zoom session.

*CME/CNE/CPE points will be awarded

*Please register and join the meeting using your work email.

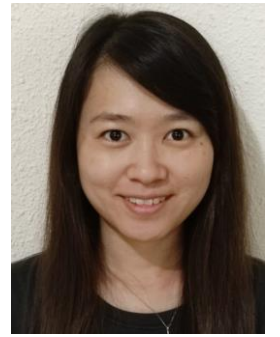
[^]The Catalyst Grant and STF, previously administered by NCID, is now administered by the Interim Communicable Diseases Agency (iCDA), and with effect from 1 April 2025 by the Communicable Diseases Agency (CDA).



Establishing a 3D lung slice model (PCLS) for Singapore

by **Dr Cheong Hui Juan Dorothy** (FY23 STF Awardee)

Research Fellow, National University of Singapore



Precision Cut Lung Slices (PCLS) is an *ex vivo* organotypic approach that encapsulates the lung's complexity, surpassing other lung models like ALI. Using *in vitro* assays to assess *in vivo* responses, reduces the reliance on *in vivo* or clinical subjects. PCLS can be used for multiple functional bioassays, including bronchoconstriction assays, infection studies, and drug/vaccine screening. Dr Cheong fine-tuned the PCLS technique for mice lungs under Prof Jane Bourke, University of Melbourne, through the NCID Short-term Fellowship. She now aims to biobank PCLS from other species like bats, non-human primates, and humans, strengthening Singapore's research capabilities in pandemic preparedness by fast-tracking screening of respiratory pathogens and understanding tissue tropism of unknown respiratory disease threats.

Neutrophil hyperinflammation in uncontrolled DM drives tissue destruction in human pulmonary TB

by **Dr Thong Pei Min** (FY23 STF Awardee)

Research Fellow, National Centre for Infectious Diseases

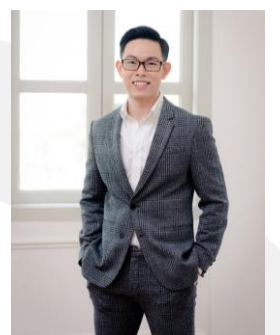


Neutrophilia and systemic hyperinflammation are key characteristics of diabetes-tuberculosis (DM-TB), but the mechanisms of how neutrophils worsen TB pathology are unknown. We examine neutrophil functions, host proteases and chemokine protein and gene expression in a cellular model and in patients to identify the mechanism of dysregulation.

Antimicrobial coating to prevent implant-associated infections

by **Asst Prof Andy Tay Kah Ping** (FY23 Catalyst Awardee)

Assistant Professor, National University of Singapore



Biofilm formation and microbial colonization of implant surfaces is a significant source of hospital-acquired infections and implant failures. In this talk, I will share our work to create a thin film hydrogel coating with anti-microbial and immuno-modulation properties to prevent and treat prosthetic joint infections through release of chemokines to attract macrophages to eliminate pathogens, and phages for synergistic killing of pathogens with antibiotics.

Establishment of a novel human airway organoids and immune cell co-culture model system to assess human coronavirus infection

by **Dr Louisa Chan** (FY23 Catalyst Awardee)

Senior Research Fellow, Lee Kong Chian School of Medicine, Nanyang Technological University



An autologous airway organoid-peripheral blood mononuclear cell (PBMC) co-culture model is generated to assess human coronavirus infection and the interaction between host epithelial cells and immune cells. Airway organoids co-cultured with PBMCs resulted in similar viral replication efficiency and slight reduction in pro-inflammatory cytokines and chemokines after infection.