Infectious Diseases Labs

ID LABS

ID LABS SEMINAR SERIES

Dr Yogy Simanjuntak

Leibniz-Institute for Experimental Virology, Germany

Friday 30th July 2021
2pm to 3pm (SGT)

Join zoom meeting **here**
Meeting ID: 918 7227 0424
Passcode: 975214

Webinar is open to all
No registration required

Integrative pharmaco-and nutriproteomics as a counterattack against viral infection

System virology is a multidisciplinary approach to reveal systematically and comprehensively host response against viral infection. Taking advantage of bottom-up (shotgun) proteomics that offers sensitive and high-throughput analysis of complex biological samples, one can identify viral-induced perturbations in the proteomic level. These perturbations include protein expression, localization, interaction, and post-translational modification. Subsequently, advance bioinformatics is applied to identify significant proteins and/or map potential signaling pathways for further functional studies to elucidate their role in viral replication and/or disease pathogenesis. These proteostasis and functional data are then used to formulate and evaluate relevant therapeutic strategies against viral infection *in vitro* and *in vivo* through nutritional intervention, drug repurposing, or novel antiviral drug development. I will share the implementation of system virology in my recent works dealing with Zika and Dengue virus infection. Furthermore, I will also discuss several prospective studies such as profiling micro/macronutrient transporters/receptors in flavivirus and SARS-CoV-2 infected cells,profiling pathogenesis of flavivirus NS1 and NS1-targeting drug development; profiling pathogenesis of SARS-CoV-2 NSP5 and drug development; and identifying regulatory proteins responsible for persistent infection in immunocompetent mice.

Dr Yogy Simanjuntak is currently working as a research associate at Leibniz-Institute für Experimentelle Virologie,Hamburg-Germany. My main tasks cover global proteomic profiling of post-mortem tissue biopsies of COVID-19 case and SARS-CoV-2 infected cells, interactome profiling of flaviviral proteins, and establishment *in vitro* and *in vivo* experiments for BSL3(+) pathogenic viruses. Previously, I joined postdoctoral training for five years in the field of flavivirus infection at the Institute of Biomedical Sciences-Academia Sinica, Taiwan. I focused on sexual (from male-to-female) and vertical (from mother-to-embryo) transmission of Zika virus by studying viral pathogenesis and establishing *in vitro* and *in vivo* models. I received Ph.D in molecular medicine from Taiwan International Graduate Program, National Yang Ming University-Institute of Biomedical Sciences, Academia Sinica, Taiwan. Upon completion of Ph.D program, I had revealed the role of dopamine signaling in Dengue and Japanese Encephalitis virus infections and identified symptomatic drugs that also displayed potent antiviral activity *in vitro* and *in vivo*. In addition, I received clinical nutrition training from Faculty of Medicine-University of Indonesia and completed the internship program in the Department of Nutrition-WZ Johannes district hospital-Indonesia involving clinical trials of vitamin A and zinc supplementations in pulmonary tuberculosis patients for improving the disease prognosis. I am looking forward to giving significant contributions in the field of infectious disease by integrating all these expertise including bottom-up proteomics, drug design and antiviral development, formulation of nutritional intervention, and *in vivo* models in System Virology.