



Infectious
Diseases Labs

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Dr Gary Wong

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Wednesday 26th August 2026

10:00 AM to 11:00 AM (SGT)

Venue: Matrix, Level 5, Codon A & B

Pandemic preparedness in the Greater Mekong Subregion

The Greater Mekong Subregion (GMS) is a highly interconnected and biodiverse region where porous borders, rapid population growth, climate change, and increasing human-wildlife interactions create significant challenges for pandemic preparedness. The region's tropical environment and expanding transport and trade networks may facilitate the emergence and rapid cross-border spread of infectious diseases. Major infrastructure and connectivity initiatives, including the Kunming-Singapore Rail Link and the Belt and Road Initiative, are likely to further increase human, animal, and commercial mobility, potentially amplifying the risk of zoonotic spillover and pathogen dissemination beyond the region. In this talk, I will present my work on pandemic preparedness in the GMS, including the surveillance of priority pathogens, the discovery and characterization of novel and neglected viruses carried by bats, rodents, and arthropods, and the development of field-friendly assays for pathogen detection and diagnosis. These studies aim to improve our understanding of emerging infectious disease risks and strengthen regional capacity for the early detection and response to emerging and re-emerging pathogens.

Gary Wong holds a Ph.D. in Medical Microbiology from the University of Manitoba and is currently Head of the Virology Laboratory at the Institut Pasteur du Laos. He has nearly 20 years of experience working in BSL-3 and BSL-4 laboratory environments, including 9 years as an independent Principal Investigator. His research spans the full pathway from emerging pathogen discovery and characterization to surveillance, diagnostic development, and translational research, with a strong focus on One Health approaches to infectious disease emergence in Southeast Asia.

His research program integrates human, animal, and environmental surveillance to investigate the host, pathogen, ecological, and climatic factors driving viral spillover and emergence in the Greater Mekong Subregion. He has led the development and validation of rapid point-of-care molecular diagnostics, including RPA- and LAMP-based assays, as well as high-throughput serological platforms, such as LIPS and Luminex, for antibody profiling. His broader research portfolio includes the development of small animal models, vaccine candidates, and therapeutic approaches for priority pathogens.

His current research focuses on a broad range of emerging and re-emerging viruses, including arboviruses such as dengue and chikungunya viruses, respiratory viruses including avian influenza viruses and coronaviruses, and novel or neglected pathogens circulating or suspected to be circulating in Southeast Asia, including severe fever with thrombocytopenia syndrome virus and hantaviruses.

Hosted by: Prof Marco Vignuzzi

Seminar is open to all. No registration required.

Questions? Contact us at seminars@a-star.edu.sg

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