



SEMINAR

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Hosted by Emeritus Professor Kini

Immune Modulators in Mosquito Saliva: A New Therapeutic Target to Combat Arboviral Threats

By Fong Siew Wai

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About the Speaker

*Dr. Fong Siew Wai is a viral immunologist at A*STAR Infectious Diseases Labs. She earned her Ph.D. in Human Physiology from Universiti Sains Malaysia and completed postdoctoral training at the National University of Singapore under the MOE Tier 3 program, advancing understanding of how mosquito saliva modulates viral infection. Her research focuses on mosquito-borne viruses such as dengue and chikungunya, with a unique emphasis on salivary immunomodulators like sialokinin. She specialises in translational immunology, developing immune assays and host-based diagnostics to guide clinical decisions. During the COVID-19 pandemic, she was involved in national efforts in immunophenotyping, identifying biomarkers that informed therapeutic strategies and vaccine development. Her work has been published in The Lancet, Nature Communications and EMBO, earning her Singapore's COVID-19 Resilience Medal. Her goal is to develop therapeutics and diagnostics that strengthen global health security and epidemic preparedness.*

Mosquito-borne viruses remain a major global health concern, affecting millions annually. While much attention has focused on viral pathogenesis, the immunological impact of mosquito saliva during infection is less understood. When mosquitoes bite, they not only transmit viruses but also inject saliva containing bioactive molecules that interact directly with host.

Studies show that mosquito saliva alone can modulate immune responses, with effects detectable up to seven days post-bite. We hypothesise that mosquito salivary immune modulators may enhance viral replication and dissemination by altering host immunity. Using chikungunya virus as a model, our research investigates how specific salivary proteins influence the early immune landscape and affect infection.

This seminar will highlight our findings on the immunomodulatory properties of mosquito saliva, including molecular profiling of salivary components and their impact on viral responses. By uncovering how saliva shapes host-pathogen interactions, we aim to identify novel targets for therapeutic intervention and vector-based disease prevention.