Infectious Diseases Labs

A*STAR IDL

Prof Maria Carla Saleh

Director of the Department of Virology
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Wednesday 19th Nov 2025
2:00 PM to 3:00 PM (SGT)

Venue: Codon A & B, Matrix Level 5

The art of insects, immunity and idealism

Humans often consider themselves the dominant life form on Earth, yet insects have been playing the game of evolution for more than 250 million years before the appearance of the first mammal. Their resilience suggests they may endure long after humans are gone. After all, they have witnessed the rise and fall of dinosaurs.
Our research has been exploring how insects respond to viral infections, not only through classical immune pathways but also via metabolic adaptations, stress responses, and tissue repair. Our findings challenge the traditional view of the immune system as merely a defense against pathogens, proposing instead that it serves as a sophisticated sensor of internal and external environments. Today, I will discuss the lessons learned over 17 years at the Institut Pasteur and reflect on how fostering a nurturing environment is essential for unlocking intellectual creativity and driving scientific discovery in unexpected directions.

Prof Maria Carla Saleh was born in Argentina, where she finished her Masters degree in Biology at the National University of Cordoba. She obtained her PhD on Cellular and Molecular Physiopathology at the University of Paris 6, and then went to University of California, San Francisco, where she worked as a postdoc focusing on antiviral immunity. In 2008, Prof Saleh secured a position as a junior group leader at the Institut Pasteur of Paris (France) and was tenured in 2013. Insects have an immune system that allows them to remain asymptomatic when they are infected with a virus that is deadly when transmitted to humans. How is this possible and how does this immune system work? Can we manipulate this immune system and therefore prevent humans from getting infected by insect bites? With her ERC projects, Prof. Saleh aims to answer these questions by using the fruit fly Drosophila melanogaster as a model insect to explore our research. With her team, she goes on to develop a unique combination of basic science and bioinformatics that allow them to tackle several projects in ill-studied areas of insect antiviral immunity, as well as to investigate key aspects of pre-existing and often incomplete paradigms on host-pathogen biology. Their scientific strategy offers new perspectives on emerging viral disease transmission and will inspire a new way of thinking about immunity.

Hosted by: Prof Marco Vignuzzi

Seminar is open to all. No registration required.

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

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