



Infectious
Diseases Labs

A*STAR IDL



Prof Matthew Sweet

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Medical Research Council of
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Wednesday 25th March 2026

2:00 PM to 3:00 PM (SGT)

Venue: Codon A & B, Matrix Level 5

A wander through the wonders of innate immunity: immunometabolic control of inflammatory and antimicrobial pathways in macrophages

Over the last decade or more, immunometabolism research has revolutionised the field of immunology. It is now clear that specific metabolic pathways and the metabolites they produce profoundly affect immune cell functions. Regulated cell metabolism is intimately linked to both inflammation and host defence, with glycolysis and the pentose phosphate pathway (PPP) being pivotal in directing inflammatory and antimicrobial responses in macrophages. In investigating the role of macrophage metabolism in context-dependent danger recognition, we discovered that the PPP metabolite, ribulose-5-phosphate (RL5P), has both anti-inflammatory and anti-bacterial properties. The mechanisms by which RL5P exerts these immunomodulatory effects will be discussed, as will our efforts to devise novel anti-infective and anti-inflammatory approaches through manipulation of the PPP in macrophages.

Prof Matthew (Matt) Sweet is a Group Leader and National Health and Medical Research Council of Australia Leadership Fellow at the Institute for Molecular Bioscience (IMB), The University of Queensland (Brisbane, Australia). Since his appointment as an IMB Group Leader in 2007, Matt has held several leadership roles, including as inaugural Director of the Centre for Inflammation and Disease Research (2014-2018) and the Director of Higher Degree Research (2021-2025). Matt's group is interested in developing novel anti-infective and anti-inflammatory approaches through a detailed understanding of the molecular processes that control macrophage functions. Recent research in his laboratory has focused on immunometabolic control of macrophage functions.

Hosted by: Assoc Prof Amit Singhal

Seminar is open to all. No registration required.

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

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