SIgN Immunology Seminar



Dr Matt Sweet

Institute for Molecular Bioscience (IMB), IMB Centre for Inflammation and Disease Research, The University of Queensland, Brisbane, Australia

New approaches to manipulate macrophage antimicrobial and inflammatory pathways

Host
Dr Subhra Biswas
Singapore Immunology Network,

Date
Tuesday 25 October 2016

Time
11am – 12pm

Venue
SIgN Seminar Room
Immunos Building
Level 4
Biopolis

Cells of the innate immune system such as macrophages play essential roles in detecting and responding to danger, which can be sensed as a result of infection, injury and/or dysregulated homeostasis. These cells use several families of pattern recognition receptors (PRRs), such as the toll-like receptors (TLRs) and nod-like receptors (NLRs), to recognize specific danger signals. Innate immunity and pattern recognition receptors play central roles in inflammatory and infectious disease processes. During inflammatory diseases, inappropriate or prolonged PRR activation drives dysregulated inflammation and subsequent pathology. This talk will describe the role of a novel TLR adaptor molecule in providing specificity to inflammatory cytokine outputs, and the role of a specific histone deacetylase (HDAC) enzyme in driving macrophage inflammatory responses. Both of these pathways offer opportunities for targeting macrophage inflammatory responses. In the context of infectious diseases, successful pathogens must overcome innate immunity to cause disease. Indeed, many important pathogens actively target macrophages, residing in these cells or destroying them to avoid immune responses. This talk will also describe TLR-inducible antimicrobial pathways and the role of a particular HDAC in constraining one such response. Targeting this pathway may provide an opportunity to manipulate innate immunity as an anti-infective strategy. We are exploring this approach for the bacterial pathogens *Salmonella* and uropathogenic *E. coli.*