Singapore Immunology Network
A*STAR

SIgN SEMINAR

hosted by Dr Ng Lai Guan

Dr Edward B. Thorp

Feinberg School of Medicine,
Northwestern University

Macrophage Immunometabolic Repair of Heart

During wound injury, efferocytosis fills the macrophage with a metabolite load nearly equal to the phagocyte itself. A timely question pertains to how metabolic phagocytic signaling regulates the signature anti-inflammatory macrophage response. Here we report the metabolome of activated macrophages during efferocytosis to reveal an interleukin-10 (IL-10) cytokine escalation that was independent of glycolysis yet bolstered by apoptotic cell fatty acids and mitochondrial β-oxidation, the electron transport chain, and heightened coenzyme NAD^+. Loss of IL-10 due to mitochondrial complex III defects was remarkably rescued by adding NAD^+ precursors. This activated a SIRTUIN1 signaling cascade, largely independent of ATP, that culminated in activation of IL-10 transcription factor PBX1. Il-10 activation by the respiratory chain was also important in vivo, as efferocyte mitochondrial dysfunction led to cardiac rupture after myocardial injury. These findings highlight a new paradigm whereby macrophages leverage efferocytic metabolites and electron transport for anti-inflammatory reprogramming that culminates in organ repair.

11 September 2019 (Wednesday)
11:00am – 12:00pm
SIgN Seminar Room, Immunos Level 4

Seminar is open for all to attend.

Registration is not required.

8A Biomedical Grove, #04-06, Immunos Building, Biopolis, Singapore 138648
www.a-star.edu.sg/sign
www.facebook.com/singaporeimmunologynetwork