

SIgN Immunology Seminar



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Mast cell interactions with the vascular endothelium during viral infection

Mast cells (MCs) are granulated cells, best known for their role in allergic responses. However, there is a growing appreciation that tissue-resident MCs act as sentinels for infection. To facilitate pathogen surveillance, MCs are strategically located at the host–environment interface, as well as proximal to both blood vessels and lymphatic vessels within tissues. Although MC responses to viral pathogens are highly varied, recent evidence has shown that MCs have a role in immunosurveillance for the arboviral pathogen, dengue virus, which is injected into the skin during natural-route infection. During dengue-induced activation, MCs degranulate nearly instantaneously, releasing a broad panel of pre-synthesized pro-inflammatory and vasoactive mediators from intracellular stores. In humans, dengue virus infection is associated with symptoms involving endothelial activation and vascular permeability. Therefore, we examined the interactions between MCs and blood vessels during localized versus systemic dengue, using mouse models. MC-dependent endothelial activation during localized, cutaneous dengue infection was protective and involved MC-driven recruitment of cytotoxic cells. In contrast, systemic dengue infection induced MC-dependent vascular permeability. Ongoing human studies highlight that certain MC-derived products may be effective biomarkers of severe vascular pathology in dengue-infected humans, while others are linked, mechanistically, to increased endothelial permeability.

Host

Dr Lai Guan Ng
Singapore
Immunology
Network, A*Star

Date

Monday
28 April 2014

Time

11am – 12pm

Venue

SIgN Seminar
Room
Immunos Building
Level 4
Biopolis