SIgN Immunology Seminar

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The role of Programmed cell death 1 (PD-1) in the immunopathogenesis of malaria

Host
Dr Laurent Renia
Singapore Immunology Network, A*Star

Date
Tuesday
10 December 2013

Time
11am – 12pm

Venue
SIgN Seminar Room
Immunos Building
Level 4
Biopolis

Malaria is a highly prevalent disease caused by infection by Plasmodium spp. which infect hepatocytes and erythrocytes. Blood-stage infections cause devastating symptoms and can persist for years. Antibodies and CD4+ T cells are thought to protect against blood-stage infections. However, there has been considerable difficulty in developing an efficacious malaria-vaccine, highlighting our incomplete understanding of immunity against this disease. We have recently used an experimental rodent malaria model to show that in contrast to widely held views, parasite-specific CD8+ T cells are required to control both acute and chronic blood-stage disease even when parasite-specific antibodies and CD4+ T cells are present. Significantly, PD-1 mediates up to a 95% reduction in numbers and functional capacity of parasite-specific CD8+ T cells which could provide a molecular explanation for chronic malaria which will be relevant to future malaria-vaccine design and may need consideration when vaccine development for other infections is problematic.