SIgN Immunology Seminar

Dr Lance Turtle

Institute of Infection and Global Health, University of Liverpool and Tropical and Infectious Disease Unit, Royal Liverpool University Hospital

Human T cell responses to JE virus in South India – interactions between flaviviruses and implications for pathogenesis & vaccines

Host
Dr Lisa Ng
Singapore Immunology Network, A*Star

Date
Monday
17 February 2014

Time
11am – 12pm

Venue
SIgN Seminar Room
Immunos Building
Level 4
Biopolis

The genus *Flavirvirus*, family *Flaviviridae* contains the most important arthopod-borne viral pathogens of man. There is a high level of immune cross-reactivity between members of genus *Flavivirus* with varying clinical consequences. The best studies effect is the unique phenomenon of secondary dengue virus infection leading to a more severe clinical illness, dengue haemorrhagic fever (DHF) or dengue shock syndrome (DSS). Pre-existing adaptive immunity to dengue virus is the strongest factor associated with DHF/DSS and may even be a pre-requisite. However, dengue virus (DENV) infection may be protective against Japanese encephalitis virus (JEV). Data on the effect of JEV on subsequent DENV infection are contradictory. Both antibody and T cell responses cross-react within the genus *Flavivirus*. Epitope mapping of JEV using a synthetic peptide library of overlapping peptides covering the entire JEV proteome has revealed that healthy JEV exposed controls and recovered JE patients recognise different parts of the viral proteome, with JE patients recognising regions that are less conserved across the genus. Moreover, experiments directly measuring the degree of cross-reactivity between the viruses have shown that healthy JEV exposed controls are able to cross-recognise epitopes from other flaviviruses much more than JE patients. These findings have implications for predicting disease susceptibility in populations and for rational vaccine design and use.