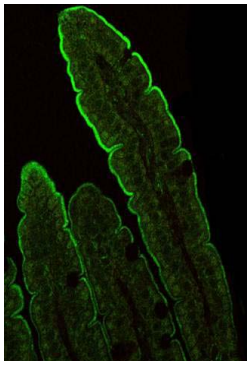
Australian National University

PhD Exit Seminars

Emrah Tumer & Leon (Chien-Wei) Lin

Thursday 2 May 2013, 1pm

Slatyer Seminar Room, Building no. 46, Linnaeus Rd, ANU



Transcriptional regulation of Slc6a19 (B°AT1) along the crypt-villus axis
Emrah Tumer, Bröer lab, BSB

Digestion of proteins takes place mainly in the small intestine followed by the absorption of amino acids and peptides by enterocytes. The absorption surface area in the intestine is drastically increased by finger-like protrusions along the small intestinal lumen (called villi) and invaginations (called crypts). Enterocytes develop from stem cells in the crypt and differentiate into mature enterocytes while moving along the crypt-villus axis. In my PhD research, I investigated transcription factors and epigenetic modulators that regulate Slc6a19 expression. The Slc6a19 gene encodes the neutral amino acid transporter B°AT1. My experiments demonstrate that epigenetic modifications and transcription factor distribution orchestrate B°AT1 expression along the crypt-villus axis.

Effect of inoculation route on priming pathway and CD8+ T cell immunodominance during vaccinia virus infection
Leon (Chien-Wei) Lin, Tscharke Lab, BSB

The CD8+ T cell response is essential for defence of mammals against pathogens and tumours, but its initiation and modulation are not fully understood. My PhD project focused on two aspects of CD8+ T cell responses. First, antigen priming pathways, which dictate the initiation of epitope-specific responses. Second, immunodominance representing the breadth of immune responses. In vaccinia virus infection model, I demonstrated that the preference for antigen-priming pathways is diverse among epitopes, and the route of infection may also play a role in affecting antigen-priming during infection. Compared to the systemic routes, the strong immunodominance seen after peripheral infection is suggested to be associated with restricted CD8+ T cell priming sites. Further, I showed that competition for costimulatory molecules may be a mechanism for sharpened immunodominance following peripheral infection. Together, this study expanded our understanding of antigen priming and immunodominance during primary infection, providing insight into the immune system and vaccine development.

Presented by

Division of Biomedical Science & Biochemistry

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