SIgN Immunology Seminar

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MAIT cells, an evolutionarily conserved T cell subset with anti-bacterial reactivity.

Host
Dr Jean-Pierre Abastado
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Date
Friday,
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Time
11am – 12pm

Venue
SIgN Seminar Room,
Immunos Building
Level 4
Biopolis

MAIT cells represent a non-classical T cell subset whose TCR specificity and restricting MHC class Ib molecule, MR1, are highly conserved between species. MAIT cells are abundant in human blood (1-8% of T cells), the intestinal mucosa, mesenteric lymph nodes and liver (20-40%). MAIT cells exit the thymus as naïve cells before acquiring a memory phenotype and expanding in the periphery in the presence of B cells and commensal flora.

Human MAIT cells are CD161^{hi} IL-18Rα^{hi} tissue targeted cells with an effector-memory phenotype. MAIT cells are RORC+ and produce IFN-g and IL-17. MAIT cells are activated by cells infected with bacteria and yeasts. In humans, MAIT blood numbers are decreased in patients with bacterial infections. In mice, MAIT cells protect against experimental infections and accumulate at the site of infection.

MAIT cell numbers are increased in multiple sclerosis (MS) patients and have been found in MS lesions, whereas they are decreased in the blood and accumulate in the lesions of inflammatory bowel disease (IBD) (Treiner et al, in preparation).

Thus, MAIT cells expand during the first two years of life after contact with the commensal flora/B lymphocytes and migrate to tissues following strong or repeated (specific?) microbial infections. We hypothesize that MAIT cells may play a role during infancy, protecting against some bacterial, parasite or yeast pathogens.