

SIgN Immunology Seminar



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Controlling Autoimmunity: The Effector/Regulatory T Cell Balance

Host
Prof Paola
Castagnoli
Singapore
Immunology
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Date
Friday,
25 January 2013

Time
3pm – 4pm

Venue
Aspiration,
Level 2M
Matrix
Biopolis

The immune system exists in an equilibrium, such that activation of the system to generate effector and memory cells that defend us against pathogens is balanced by the mechanisms of tolerance, which prevent aberrant and harmful responses to self antigens. A major mechanism of tolerance relies on regulatory T cells (Treg), which are generated in the thymus and peripheral tissues and function to suppress and limit immune responses. Tregs respond to tissue antigens by developing an enhanced capacity to suppress immune responses and by migrating to tissue sites of inflammation. A fraction of these Tregs survive as long-lived memory Tregs, and are able to limit subsequent inflammation in the tissue. Elucidating the stimuli that generate and maintain functional Tregs in the periphery will likely be valuable for manipulating immune responses in inflammatory diseases and for optimal vaccination and cancer immunotherapy. We have used transgenic and knockout mouse models to address the mechanisms of the generation and activation of Tregs in tissues. Our studies indicate that antigen and cytokines are the major stimuli that induce peripheral Tregs and control the balance of effector and regulatory cells. In particular, the growth factor IL-2 is essential for the generation and maintenance of functional Tregs. These studies are leading to renewed attempts to exploit Tregs and IL-2 treatment to control harmful immune responses.