

SlgN Immunology Seminar



A/Prof Véronique Angeli

Department of Microbiology / Immunology
Program, NUS

Phenotypic and functional characteristics of LYVE-1 expressing macrophages

Host

Prof Paola
Castagnoli
Singapore
Immunology
Network, A*Star

Date

**Thursday,
9 May 2013**

Time

11am – 12pm

Venue

SlgN Seminar Room
Immunos Building
Level 4
Biopolis

Although lymphatic vessel endothelial hyaluronic acid receptor-1 (LYVE-1) is a specific marker for lymphatic vessels, it has also been reported on some tissue macrophages. However, the function of these macrophages has been largely overlooked and limited to embryonic development. Here, we showed that tissue LYVE-1⁺ macrophages possess a substantial potential for autonomous self-renewal and their survival is highly dependent on Colony Stimulating Factor-1. Unexpectedly, confocal images of skin and trachea revealed that LYVE-1 expressing macrophages are lining the outer layer of vessels exhibiting smooth muscle cells (e.g. veins, arteries/arterioles) but not those displaying pericytes (capillaries) suggesting that they may support vessel homeostasis. Indeed, depletion of LYVE-1⁺ macrophages using several strategies resulted in remodeling of the vessel wall, particularly the medial layer, and vascular leakage. Moreover, media thinning in the aorta of mice developing atherosclerosis, a chronic inflammatory disease of large arteries, was associated with a loss of LYVE-1⁺ macrophages. We have some evidence that LYVE-1⁺ macrophages may maintain vessel wall integrity by controlling the balance between degradation and synthesis of key extracellular matrix proteins such as collagen and elastin produced predominantly by smooth muscle cells. Altogether, our findings reveal a novel trophic function for LYVE-1⁺ macrophages with great potential for future clinical translation.