The Centre for Blood Research

Wednesday, April 11, 2012
12:00pm
in LSC3

Life Sciences Centre
2350 Health Sciences Mall

Dr. Toni Antalis

Professor of Physiology
Associate Director, Center for Vascular and Inflammatory Diseases
Director, Molecular Medicine, Graduate Program in Life Sciences
University of Maryland School of Medicine

"Membrane-anchored serine proteases in vascular biology and inflammation"

Membrane anchored serine proteases are a subfamily of proteases which are linked directly to the cell surface, via either transmembrane domains or glycosylphosphatidylinositol (GPI)-membrane anchors. These enzymes are proving to be key components of the cell surface machinery for activation of precursor molecules in the pericellular microenvironment, with several playing vital roles during development and the maintenance of homeostasis. We are investigating the roles of several of these enzymes, Testisin, Matriptase, and Prostasin, in inflammation and vascular biology, and their involvement in cell signaling through protease activated receptors. Testisin is a GPI anchored serine protease found in microvascular endothelial cells (ECs), but not in macrovascular ECs, and its expression is deregulated in various cancers. In studies investigating Testisin function using Testisin deficient mice, we find that Testisin plays a role in capillary outgrowth during angiogenesis. Matriptase, a type 2 transmembrane serine protease, and the GPI-anchored serine protease Prostasin are co-expressed in all epithelia, and have been shown to regulate epithelial barrier formation in the epidermis. Investigation of in vitro and in vivo models of matriptase deficiency show that loss of matriptase compromises intestinal epithelial barrier integrity and renders mice dramatically more susceptible to experimental models of inflammatory bowel disease. Strategies to enhance matriptase-mediated barrier recovery could be important for intervening in the cycle of inflammation associated with IBD.

Host: Dr. Ed Conway, Director, Centre for Blood Research UBC

Refreshments will be served 10 minutes before the seminar
Seminar information: 604 822 7407