The Centre for Blood Research presents

CBR SEMINAR SERIES

Wednesday, January 18, 2023
1:00PM - 2:00PM PT

Life Sciences Centre
1003 (LSC3) & Zoom

"Novel roles of platelets in infection and inflammation"

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I have concentrated my research effort on dissecting the mechanisms underpinning how cells alter coagulation under normal and disease situations, as well as determining how hemostasis and thrombosis, in turns, alters cellular response during inflammation. In particular, I have focused on understanding the regulation of transcription and translation in megakaryocyte and platelets under health and disease. To accomplish these goals, I have developed *in vitro* and *in vivo* model systems to examine gene and protein expression in megakaryocytes and platelets. We have elucidated novel mechanisms regulating megakaryocyte and platelet function and activation under normal homeostasis, including translational control mechanism regulated by microRNAs. We have also discovered that platelets and megakaryocytes possess novel intrinsic host defense mechanisms in addition to their ability to respond to inflammatory signals that induce robust changes in gene and protein expression. We have also demonstrated these changes in gene expression alter thrombo-inflammatory responses, which often occur in the setting of aging and in the context of stroke. We also have extensively studied platelet interactions with other cells including neutrophils and monocytes and how these interactions alter platelet and leukocyte responses. In addition, my laboratory has significant experience dissecting molecular pathway in platelets, which regulate thrombosis using murine model systems. This includes *in vivo* models of thrombosis such as venous thrombosis, pulmonary embolism, and ischemic stroke. In these studies, we have used state-of-the-art technologies including RNA-seq to examine the transcriptional changes in platelets and megakaryocytes from mice to uncover novel genes critical for platelet responses during inflammation and thrombosis.

Many thanks to generous support from: