GUEST SPEAKER SEMINAR

Molecular Genetics
UNIVERSITY OF TORONTO

The curious and winding road from poxvirus tropism to oncolytic virotherapy

Myxoma virus (MYXV) is a host-restricted leporipoxvirus that causes an acute lethal infection specifically in European rabbits. Our studies on MYXV tropism have shown that the virus is also fully permissive for a wide spectrum of human cancer cells in vitro and in vivo. We are currently developing MYXV as an oncolytic virotherapeutic to treat a spectrum of human cancers that exhibit defective cell signaling responses. We have recently shown that MYXV can selectively infect and kill primary human cancer cells that contaminate bone marrow samples from patients with acute myeloid leukemia (AML) or multiple myeloma (MM) but the virus spares the normal CD34+ hematopoetic stem and progenitor cells within the sample needed to reconstitute the immune system following autologous bone marrow transplantation. Also, the MYXV ex vivo treatment of allogeneic bone marrow transplant samples from normal cancer-free donors was found to suppress the development of graft-vs-host-disease (GVHD) in recipient NSG mice. Our recent studies in collaboration with the lab of Dr. Chris Cogle (U Florida) indicate that ex vivo MYXV virotherapy of bone marrow transplants can also eliminate pre-existing residual cancer in recipients. Thus, the fundamental study of a rabbit-specific poxvirus pathogen has revealed unexpected applications for improving the clinical outcomes of both autologous and allogeneic stem cell transplantation therapy for cancer.

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Host: Dr. Lori Frappier

Date: Monday September 28th, 2015
Time: 4PM
Place: Fitzgerald Building
150 College Street
Room 103