



Graduate Studies Lum Lab - Posting#: LUM-G0807

Research Areas: Cancer Stem Cells / Tumor Immunology & Metabolism

This opportunity is available starting Sept 1, 2008 or Jan 1, 2009

The Deeley Research Centre, located within the BC Cancer Agency's Vancouver Island Centre, is affiliated with the Departments of Biology and Biochemistry/Microbiology at the University of Victoria and we have an opening for a graduate student this fall.

If you are a highly motivated individual with excellent communication, organization and teamwork skills we encourage you to consider graduate studies in the Lum Lab whose focus is on cancer immunology.

These are some of the skills you will have the opportunity to develop:

- basic molecular biology skills such as: PCR, cloning, protein expression, DNA/RNA extraction and Western blotting
- mammalian cell culture and *in vivo* tumor models
- knowledge in the areas of standard immunoassays, immunofluorescent microscopy, flow cytometry

The major research interest of this new laboratory within the DRC is to ask how adaptive survival programs induced by various metabolic stresses affect the process of cancer. As tumors expand, limitation in critical nutrients such as oxygen and glucose may prevent further outgrowth. To avert cell death, tumors must activate survival responses to maintain bioenergetics. We plan to focus on one survival response termed *autophagy* and to study its role in nutrient deprived neoplastic cells and how autophagy promotes their survival. This process may also be important for the survival of *cancer stem cells*. We will undertake studies to determine whether cancer stem cells have unique survival properties and how those pathways can be used as therapeutic targets. Another goal is to determine whether host lymphocyte function is regulated by the tumor microenvironment and how augmentation of lymphocyte metabolism might improve tumor responses to immunotherapy.

The observation that autophagy plays a role in antigen presentation of infectious pathogens to enhance T cell function led us to the idea that autophagy may also serve to protect against the development of cancer. Therefore, we will also investigate whether autophagy plays a role in processing native antigens which can be used as *immunotherapy* targets against tumors. Understanding how autophagy regulates these processes at the molecular level may be key to developing novel treatments for cancer.

To learn more about Dr. Julian Lum's research at the Deeley Research Centre go to our website http://www.bccrc.ca/drc/people_jjlum.html

If you are interested in this exciting opportunity, please contact Dr. Julian Lum jjlum@bccancer.bc.ca