Comprehensive Research Experience for Medical Students
Summer Research Program 2021
Supervisor/Project Information Form

Due February 24, 2021 by email to crems.programs@utoronto.ca

Supervisor Name: 
Dr. Helen Cheung

Project Title: 
MRI biomarkers for colorectal liver metastases

Hospital/Research Institution: 
Sunnybrook Research Institute

Email: 
Helen.cheung@sunnybrook.ca

Field of Research (2 keywords): 
MRI, cancer

Department: 
Medical Imaging

School of Graduate Studies Appointment (IMS, LMP, IHPME etc)? Yes/No: No

If YES, please name:
**Brief Project Description (<300 words):**

Colorectal cancer is the second leading cause of cancer deaths in North America and the liver is the most common site of metastatic disease. There has been significant developments in treatment of colorectal liver metastases (CRLM) including surgical, ablative, and chemotherapy techniques. MRI is now the standard of care for preoperative imaging of CRLM due to high sensitivity and specificity. However, MRI likely contains significantly more information about the tumor subtypes beyond just diagnosis (benign versus malignant). The project will be a retrospective study identifying potential MRI features that may represent biomarkers of prognosis in CRLM. The student will be involved in collecting and collating data, including clinical data (demographics, labwork, mortality data etc.) as well as analyzing imaging data (that has been segmented by radiology clinical fellows). The student will gain clinical knowledge including: management of colorectal cancer and liver metastases, anatomy and imaging of the liver, and basics of MRI techniques used to imaging the abdomen/liver. The student will also gain knowledge about how to use and process imaging segmentation software and quantitatively/semi-quantitatively analyze imaging data. S/he will also learn how to collect clinical data and basics of statistical survival analysis. The student will work closely with the PI (radiologist, MRI/cancer researcher) as well as radiology fellows involved in the project. S/he will also have the opportunity to attend relevant tumor boards. All work can be done remotely (with VPN access) if necessary as per COVID-19 guidelines.