RESEARCH OPPORTUNITY PROGRAM
299Y/399Y PROJECT DESCRIPTIONS 2019-2020
FALL/WINTER

Name and Title: Hance Clarke MD PhD FRCPC
Department: Anesthesia & Pain Management

TITLE OF RESEARCH PROJECT: Phonemics and Genomics of Chronic Postsurgical Pain and Transitional Pain Service Database Project

Number of 299Y Spots: 2

OBJECTIVES AND METHODOLOGY:
There are two research projects associated with these positions, one student will be assigned to each study. The main objective of the Phonemics and Genomics of Chronic Postsurgical Pain is to identify genetic, biological, psychosocial, environmental risk and protective factors that jointly control the transition of acute and chronic pain after coronary artery bypass graft and thoracic surgery. Our immediate goal of this project is to collect phenotypic chronic post-surgical pain data on our cohort of consenting patients. Eventually we will carry out a pilot genome-wide association study (GWAS) on 900 clinically relevant chronic pain cases post-surgery vs. 900 pain free cases, in search of polymorphisms’ and haplotypes that predispose carriers to transition to pain chronicity post-surgery.

The Transitional Pain Service Database project’s main objective is to evaluate the Transitional Pain clinical service. The objective of the service is to reduce pain, increase functioning and improve opioid monitoring for post-surgical patients. This project is prospective and observational.

DESCRIPTION OF STUDENT PARTICIPATION:
The Art and Science degree students will be involved with the collection of the pain phenomics (psychological questionnaires and perioperative data) and psychosocial data for both projects. For the Phonemics and Genomics of Chronic Postsurgical Pain project, students will have the opportunity to use the Quantitative Sensory Testing (QST) protocol validated by the German Research Network in Neuropathic Pain (DENS) as a template for our Pain Psychophysics laboratory, as well as performing mechanical pressure pain threshold tests, thermal pain and sensory threshold testing, the thermal grill illusion testing and to use the cold pressor apparatus with patients. Using QST we will have the ability to determine the primary afferent processes that are strongly correlated to the development of chronic postsurgical pain. Students for both projects will have the chance to manage the study database. Finally, there will be opportunities to observe and shadow in several areas of Anesthesia research such as the operating room environment, pre-admission clinics, and outpatient pain clinics and interact with the trans-esophageal echocardiography research group.
MARKING SCHEME (assignments with weight and due date):
10%- 2 page report due November 15 (double-spaced, including rationale of the project, hypothesis, methods)
10%- Research Poster Fair for ROP students held in March (Due April 10)
50%- Final report (approx. 10 pages double-spaced, including introduction, methods, results and discussion and references, in standard journal format; figures and legends should be included, but do not count towards the page limit; due April 10)
20%- Lab mark: 10% due December 31; 10% due April 10
10%- Participation in weekly labs meetings