Comprehensive Research Experience for Medical Students (CREMS)

2022 Supervisor and Project Information Form

Please complete and return via email ONLY to crems.programs@utoronto.ca by February 18, 2022.

**Supervisor Information**

*NOTE: CREMS will not support pre-determined pairings of students and supervisors. Supervisors must agree to open their projects to all students and interview all that are interested.*

**Name:**
Dr. Geoffrey Liu

**Email:**
Geoffrey.Liu@uhn.ca

**Department:**
Medical Oncology

**Hospital/Research Institution:**
Princess Margaret Cancer Centre/ UHN

**SGS Department(s) (if applicable):**
IMS, DLSPH, Medical Biophysics, Pharmacology and Toxicology, Epidemiology

**ORCID ID** (see https://orcid.org/- If you do not have an ORCID ID we encourage you to sign up for one):
0000-0002-2603-7296

**Location of Work:**
Princess Margaret Cancer Centre

**Field of Research (up to 4 keywords):**
Lung Cancer, Molecular Epidemiology, Real-World Evidence

**Student contact time** (number of hours per week YOU are available to the student for any concerns or to review progress):
1 hr/ wk
Project Information
NOTE: If this project is selected, this information will be posted on CREMS website for interested student applicants to view research opportunities.

PROJECT TITLE:
Canadian Rare Molecular Alteration Basket-umbrella Real-world Observational Study (CARMA-BROS) Natural History Analysis

PROJECT DESCRIPTION:
Including background, aim(s), methodS and significance of the project. Maximum 300 words.

This project is an exciting opportunity for someone with strong interest in oncology and clinical research. The CARMA-BROS observational research study (NCT04151342) is focused on understanding the Canadian landscape of rare molecular alterations in cancer. The CARMA-BROS Network currently spans more than 15 cancer centres across 5 provinces and is growing rapidly. The larger list of study objectives and hypotheses can be found at https://clinicaltrials.gov/ct2/show/study/NCT04151342.

The student will be focused on clinically annotating a list of rare molecular alterations to help describe the clinical characteristics, diagnostic methods, treatments, management and outcomes of such patients in Canada. Natural history analyses are key to developing comparator arms when determining the potential clinical and economic impact of all new and upcoming cancer treatments. With dozens of targeted drug trials expected to present results in the next few years (many of them single arm Phase II trials), these natural history analyses performed from real-world observational settings are expected to become incredibly important to anchor analyses of clinical benefit. Further, with the CanREValue framework coming forward, https://cc-arcc.ca/canrevalue/, the timing is perfect for CARMA-BROS’ contributions.

The student will be part of a team of clinicians, biostatisticians, and epidemiologists that will meet regularly to refine study hypotheses, develop analytical plans, perform quantitative and descriptive analyses. The student will also help write up such analyses. In addition, the student will assist in the writing of a methodological manuscript on the development of Basket and Umbrella Real-world Observational Studies (BUROS) for publication. There will be an equal focus on having the student gain content and methodological expertise in our descriptive approaches, including swimmer’s, spaghetti, spider, waterfall, Kaplan-Meier, cumulative incidence, and correlative plots, in addition to uni- and multivariable regression methods. See www.uhncombiel.com for our team’s philosophy and supervisory experiences. A basic background in statistics is preferred but not critical.

Is this project remote-capable (in case of new restrictions) or have an alternative remote option?
☒ Yes, remote capable
☐ No
☐ Yes, alternate remote option. Please specify (100 words max): Click or tap here to enter text.
If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?
☒ Yes ☐ No ☐ Not Applicable

If yes, please list the application submission date:

Do you expect this work will be published?
☒ Yes ☐ No ☐ Uncertain / Other
Research Environment and Student Roles and Responsibilities

Please be specific as possible. Please describe the research environment, including availability of required facilities/equipment/expertise, supervisor’s experience and mentorship plans. Please clearly outline the student role(s) and responsibilities related to the project, potential educational value, and indicate who will serve as the student’s direct report for daily oversight (PI, PhD student, technician, etc.). Maximum 300 words.

The student will focus on clinically annotating real-world evidence (molecular tests, treatments and outcomes for cancer patients with rare molecular alterations from across Canada) into a dedicated database. Additionally, the student will collect data from electronic patient records. The student will help with quality control and analytic phases of CARMA-related projects, and will work closely with the project coordinator, project manager, with supervision from a senior medical fellow and a data analyst. Biweekly CARMA-BROS meetings will involve Dr. Liu, Dr. Xu, and clinical/analytical mentors. There are currently three clinicians, three epidemiologists, and four biostatisticians working collaboratively on lung cancer real-world evidence research.

The student will be an integral part of UHN COMBIEL, a cross-disciplinary, introductory research training program that utilizes an innovative educational model involving trainee-trainee interaction, guided by supervisors with content and methodological expertise. UHN COMBIEL has 500 sqft of space with 10 work stations, and is fully equipped for a virtual training environment. UHN COMBIEL’s vision is to develop integrative learning where clinical, epidemiology, biostatistical and laboratory trainees work together on interdisciplinary projects, each mentored by experts in the areas of clinical medicine, epidemiology, biostatistics and translational medicine.

To demonstrate our resources, dedication to interns, and expertise, our Metric of Success of UHN COMBIEL can be found at https://www.uhncombiel.com/year-round-program. Over a 10 year period, there were over 250 abstract publications/research presentations by COMBIEL trainees on their research projects in provincial, national and international conferences. Over ten Novartis Oncology Young Canadian Investigator Awards and a dozen American Society of Clinical Oncology Merit Awards have been distributed to COMBIEL trainees. In early 2020, we reached the milestone of 100 research publications with COMBIEL trainees as the first author, publishing on COMBIEL projects, and won the Innovative Education Program Award from UHN.