Supervisor/Project Information Form

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

Supervisor Name: Benjamin Goldstein, MD, PhD, FRCPC

Project Title: Vascular Polygenic Risk Scores in Relation to Neurocognitive Performance in Youth with vs. without Bipolar Disorder

Hospital/Research Institution: CAMH

Email: benjamin.goldstein@camh.ca

Field of Research (2 keywords): neurocognition; vascular

Department: Psychiatry

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

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

**Context:** Cardiovascular risk factors (CVRFs) and disorders are robustly associated with neurocognition among adults, across cognitive domains and across the full spectrum of CVRFs. Although the literature in youth is more limited, similar findings have been observed among children and adolescents in community and clinical samples. The supervisor’s prior studies have shown that the vascular-cognition association is stronger among youth with bipolar disorder vs. healthy youth. Relatedly, vascular disorders are far more prevalent and occur prematurely among individuals with bipolar disorder. Moreover, familial loading of vascular disorders is associated with familiality of bipolar disorder. Taking together the substantial neurocognitive and vascular burden of bipolar disorder across the lifespan, improved understanding of the mechanisms underlying the vascular-cognition-bipolar disorder link are needed.

**Project and Role:** The student will have access to a dataset of >200 youth, ages 13-20, (~100 bipolar disorder, ~100 healthy controls) who completed an automated neurocognitive test battery (e.g. attention, executive function) and provided genetic samples from which polygenic risk scores (PGRS), based on genome-wide association studies, are currently being analyzed. PGRS for coronary artery disease, ischemic stroke, and type 2 diabetes will be evaluated in relation to neurocognitive function, with an emphasis on PGRS-by-bipolar disorder interactions. The student will be responsible for reviewing the relevant literature and working with the supervisor to generate hypotheses and determined the analytic approach. As data are in hand, the student will have the opportunity to complete a first-author peer-reviewed manuscript during CREMS.

**Setting:** The team includes 6 PhD students, a lab manager, and 9 research coordinators/analysts. The student will have access to a workstation and computer, join regular team meetings and project focused meetings, have the support of 3 PhD students whose work focuses on neurocognition, and have access to additional mentors with expertise in biostatistics, genetics, and neurocognition.