



RESEARCH SCHOLAR PROGRAM – 2018

SUPERVISOR & PROJECT INFORMATION FORM

Please complete and return, via email only (crems.programs@utoronto.ca) by **November 3rd 2017** (forms received after this date will not be posted).

Supervisor Information

Name: **Gwyneth Zai**

Email: gwyneth.zai@camh.ca

Degree: **PhD, MD**

SGS Appointment (IMS, IHPME, LMP etc.): **co-supervisor James Kennedy & Clement Zai - IMS**

Academic Rank: **Assistant Professor**

Field of Research:

neuroscience, clinical psychiatry, molecular genetics

Research Institution Affiliation (if applicable): **Centre for Addiction and Mental Health**

Allocation of student contact time (number of hours per week YOU are available to the student for any concerns or to review progress): **2hrs/wk**

Project Information

Title: Genetics, Epigenomics, and Pharmaco(epi-)genetics of Psychiatric Disorders

Description (max 500 words):

Our research aims to identify genetic and epigenomic markers that contribute to the underlying biological mechanisms of psychiatric disorders including mood disorders, anxiety disorders, obsessive-compulsive disorder, and schizophrenia, in addition to other psychiatric phenotypes such as suicide and cognitive domains. We also examine genetic variations that predict psychotropic medication response and tolerability, translating results to revolutionize the way that physicians prescribe medications. We are currently conducting a large IMPACT (Individualized Medicine: Pharmacogenetic Assessment & Clinical Treatment; <http://impact.camhx.ca/en/home.php>) study with clinical and research data, which will provide new genetic discoveries that will continuously improve the clinical validity and utility of pharmaco(ep-)genetic testing to guide treatment with psychiatric and other medications. We are in the process of completing the largest randomized controlled trial in Canada of a pharmacogenetic test via Genome Canada funds (2014-2017). More information on this randomized controlled trial can be found at: <https://clinicaltrials.gov/ct2/show/NCT02466477> for depression and <https://clinicaltrials.gov/ct2/show/NCT02573168> for schizophrenia.

If human subjects are involved, have Ethics been obtained?

YES NO Application Submitted N/A

Do you expect this work will be published within the 20 months?

YES NO Uncertain

Student's roles and responsibilities (please be specific)

The student's roles and responsibilities will include:

1. Use DNA sequencing & methylation in our current patient collections to find new variants relevant to psychiatric disorders
2. Identify genetic and epigenomic variants that predict medication response and tolerability (i.e., adverse events and serious side effects such as treatment-emergent suicidal thinking, movement disorders, weight gain, etc.)
3. Conduct clinical research interview
4. Investigate health care cost savings from pharmaco(epi-)genetic testing
5. Complete a literature review, write a manuscript and submit for publication.

In terms of resources and environment, we have a well-established research program here in the Neuroscience Research Department that includes 20 scientists who provide a superb range of expertise in molecular biology, electrophysiology and transgenics. More specifically for this project, the student will have support and training from the full staff of lab technicians, clinical assessment personnel, graduate students, and post-doctoral fellows who are conducting research in psychiatric genetics and epigenetics.

