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: Dr. Robert Levitan

Email: Robert.levitan@camh.ca

Degree: MD

SGS Appointment (IMS, IHPME, LMP etc..): IMS, physiology

Academic Rank: Full Professor

Field of Research: Mood disorders, eating behavior, seasonality, neurodevelopment

Research Institution Affiliation (if applicable): CAMH and Mt. Sinai Hospital (Cross-appointed)

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

1-3 hours

Project Information

Title: **Pregnancy Outcomes in Women with Seasonal Affective Disorder: Adaptation or Vulnerability ?**

Description (max 500 words):

The student's work will be primarily based on an ongoing longitudinal pregnancy cohort and will examine various aspects of serotonin metabolism and diet in pregnancy as a risk factor for abnormal neurodevelopment in children. The primary focus is on pregnant women who have Seasonal Affective Disorder (SAD) , a common mood disorder associated with altered serotonin metabolism and high sugar/high fat diets. The latter factors have been associated with altered brain development in both pre-clinical and clinical research.

The long term goal is to limit the incidence of major psychiatric disorders by addressing the earliest phases of brain circuitry formation in a potentially high risk population. This is a collaborative study between CAMH, Mt. Sinai and University of Toronto based on the Ontario Birth Study Cohort. The plan is to analyze maternal blood samples for tryptophan, kynurenine and fatty acids, and dietary data based on food frequency questionnaires, to determine whether individual differences in these measures predicts one or more measures of neurodevelopment including social behavior, temperament and cognition in the kids. Understanding how environmental light conditions and maternal SAD contribute in this regard will be a major focus. The main role of the student will be to help link bio-measures, clinical data, dietary measures and child outcome data. This work is highly dependent on large datasets and the ability to translate large amounts of raw data into more meaningful phenotypes and so a very strong proficiency in data management is needed.

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?

A very strong possibility.

Student's roles and responsibilities (please be specific)

Please indicate who will serve as the student's direct report (PI, PhD student, technician etc…)

Dr. Levitan will be the primary supervisor. OBS staff may take on some supervisory role at times depending on the specific data being analyzed.

Step 1 will be to read up on the prior literature linking maternal serotonin metabolism and high sugar/high fat diets with child neurodevelopment.

Step 2 will involve spending time learning about the Ontario Birth Study, the data currently available and being collected.

Step 3 will involve the development of algorithms to translate raw data (eg from diet questionnaires) into intermediate variables for hypothesis testing.

Step 4 will involve actual hypothesis testing. The student is encouraged to develop their own original hypotheses where possible.