

Supervisor & Project Information Form

Please complete and return via email ONLY to gdip.hres@utoronto.ca by **Monday September 30, 2019**

Supervisor Information

MUST have unrestricted SGS appointment (appointment to supervise graduate students)

Name: Robert M. Hamilton	Email: robert.hamilton@sickkids.ca
SGS Department: 1. Institute of Medical Science 2. Laboratory Medicine & Pathobiology	Field of Research: Inherited Arrhythmia Conditions (ARVC, Brugada Syndrome, CPVT, CCHB), focusing on biomarkers/immunology/gene discovery
Research Institution affiliation (if applicable): Translational Medicine	Location of Work: Labatt Family Heart Centre (SickKids) and Peter Gilgan Centre for Research & Learning
Student contact time (number of hours per week YOU are available to the student for any concerns or to review progress: Up to several 1 hr. sessions per week (Once per week is mandatory minimum unless otherwise arranged)	

Project Information (will be posted on GDipHR website for student access)

TITLE: Biomarkers identifying inherited arrhythmia conditions underlying sudden cardiac death (or heart block) and resultant pathologic and genetic discoveries.

DESCRIPTION (MAX 500 WORDS):

The Hamilton lab focuses on biomarker discoveries in inherited arrhythmia conditions underlying sudden cardiac death (such as Arrhythmogenic Right Ventricular Cardiomyopathy [ARVC], Brugada Syndrome and Catecholaminergic Polymorphic Ventricular Tachycardia [CPVT]) as well as other inflammatory heart conditions causing major morbidity (including but not limited to Congenital Complete Heart Block, Peripartum Cardiomyopathy and Cardiac Sarcoid). We aim for discoveries that are translational, practice changing and have commercialization potential.

Biomarkers may be diagnostic, predictive, prognostic or companion in function, and these functions are not mutually exclusive. We are currently working to extend our understanding of our identified disease markers, and determine whether they can predict disease development, stratify prognosis and guide therapy as companion biomarkers.

Many of these conditions have underlying genetics that are either unclear or incompletely determined. The presence of biomarkers can be used to assess family members, segregating them and aiding in gene discovery. These biomarkers also provide clues to the underlying pathophysiology of disease, which can further guide gene discovery and therapeutics.

Techniques within the lab include Western blots, pulldowns, ELISA, mammalian cell culture (including iPSC, animal modeling (mouse/zebrafish) immunohistology, whole genome sequencing and bioinformatics. The lab is supported by core facilities and collaborations providing high-resolution and electron microscopy.

If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?

Yes No Application Submitted (Date: _____)

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

Yes No Uncertain / Other

Student Roles & Responsibilities (please be as specific as possible)

Please indicate who will serve as the student's direct report for daily oversight (PI, PhD student, technician, etc...)

Dr. Hamilton directs the direction of investigations in the lab. Diptendu Chatterjee PhD is a scientist and senior technician with a wealth of experience and techniques and directs wet lab studies. We have a lab manager who provides clinical data and sample coordination, and assists in all administrative needs for the laboratory.

