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| **Applications will be accepted from:**[ ]  Both MD & non-MD Undergraduates[x]  MD undergraduate students only [ ]  non-MD undergraduate students only |
| **Project Duration:**[ ]  Suitable for either a 4 or 8 week project (Only Yr 3 MD students are eligible to apply for 4-week projects)[x]  Only suitable for an 8-week project [ ]  Only suitable for a 4-week project |
| **Additional information for potential student partners:**E.g. desired skills/interests/experience, scheduling restrictions for the project timeline, additional info you want applicants to provide when contacting you about this position, etc.  Interest in psychiatry, mood disorders, biomarkers in depression, clinical & functional outcomes  |

## PROJECT INFORMATION

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| **Project Title:** Optimized Predictive Treatment In Medications for Unipolar Major Depression (OPTIMUM-D)  |
| **Hypothesis or Research Question being addressed (400 character limit, ~55 words):**The primary objective of this study is to test a predictive biomarker algorithm to select medication treatment for patients with major depressive disorder (MDD) based on results from the recently completed Canadian Biomarker Integration Network in Depression (CAN-BIND)-1 study. |
| **Keywords:** **Provide approximately 5 key words that describe the proposed research project.**  Psychiatry, mood disorders, biomarkers, clinical outcomes, personalized medicine    |

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| **Project Attributes and Benefit to the Student**Please review the [online adjudication criteria](http://www.med.ubc.ca/current-learners/summer-student-research-program/adjudication/) carefully prior to completing the next two sections to ensure your application is addressing the adjudication criteria outlined in “Project Attributes and Benefits to the Student”. |

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| **A) Background and Summary of Proposed Research. Summarize the proposed project including the rationale for the project, the context within the relevant field of research, the proposed research approach and the expected project outcomes.** *If this is an ongoing project of >8 weeks duration (or 4 weeks for MD 2022 students) clearly distinguish the expected project outcomes at the end of the FoM SSRP funding period from the overall project objectives.* **Please write in lay terms for a non-specialist audience.****Character Limit: 3050 characters (~430 words)**There are currently no objective tests or biomarkers to predict whether a patient will benefit from a given medication treatment based on their unique clinical, physiological, and environmental circumstances. The primary objective of this study is to test a predictive biomarker algorithm to select medication treatment for patients with Major Depressive Disorder (MDD), based on results from the recently completed Canadian Biomarker Integration Network in Depression (CAN-BIND)-1 study. A secondary aim of this study is to collect biomarker data to validate findings from CAN-BIND-1. Sponsored by the Ontario Brain Institute ([www.braininstitute.ca](http://www.braininstitute.ca/)), CAN-BIND ([www.canbind.ca](http://www.canbind.ca/)) is a unique collaborative, multidisciplinary, multi-site research and education network with the primary goal of identifying biomarkers of treatment response to facilitate the accurate diagnosis and rapid, personalized treatment of people living with depression. The CAN-BIND-1 study collected multimodal data (clinical, neuroimaging, EEG, molecular) from patients with MDD and healthy comparison participants. Patients received a standard antidepressant treatment for 8 weeks; those who responded well to treatment then continued this treatment for another 8 weeks. Patients who did not respond to the antidepressant received an add-on (or augmentation) medication for 8 weeks. Using an integrative analysis, researchers developed a predictive biomarker algorithm (based on multimodal assessments conducted at baseline) that had good accuracy to predict response or non-response to the initial antidepressant treatment. Importantly, some of the features that predicted poor outcomes with antidepressant treatment alone predicted good outcomes with the combined antidepressant and augmentation treatment. The OPTIMUM-D study will now test this personalized predictive biomarker algorithm. Patients predicted to respond will initiate treatment with an antidepressant, while those predicted to be non-responders will receive the antidepressant plus an add-on (augmentation) medication from the start of treatment. If successful, this predictive algorithm could allow patients predicted to be non-responders to bypass the initial 8 weeks of antidepressant treatment and instead initiate treatment with both the antidepressant and add-on medication. This would save 8 weeks of futility for these patients and potentially change clinical practice. MDD is the most common psychiatric disorder and one of the most common medical conditions worldwide. One in 7 Canadians experience clinical depression at some point in their lives, costing the Canadian economy more than $5 billion per year. Depression is a growing concern for individuals living with symptoms; for family members, significant others, and employers; and for society at large.Because this is an ongoing study, the student will complete a distinct small research project related to the OPTIMUM-D study with data previously collected through the CAN-BIND program. This can be tailored to the student’s interests and developed with them.  |
| **B) Outline the student’s role in the project and describe how they will benefit from their involvement.** This section must address how involvement in this project will help the student gain an understanding of how high quality research is conducted. This includes addressing the opportunities to learn new skills in the context of the relevant learning objectives listed in the [adjudication criteria](http://www.med.ubc.ca/current-learners/summer-student-research-program/adjudication/); their anticipated interactions with other researchers and the available resources that will contribute to a beneficial experience.*Clearly indicate which items will be completed during the FoM SSRP funding period and which (if applicable) will be completed before or after the funding period if the student and supervisor have chosen to also work together outside of the funding period. Project feasibility is considered during the adjudication process; 4-week and 8-week projects will be adjudicated separately, with appropriate consideration given to each.***Character Limit: 3800 characters (~540 words)** The student's specific activities for the project will include: review clinical and research data obtained from standardized assessment measures and clinicians' notes; create a detailed analysis plan; perform statistical analyses and summarize results; find and review research literature; present results and conclusions to research groups; prepare scientific publications; interact with project collaborators; and communicate findings and advice to external collaborators. With permission from patients, the student will also be offered opportunities to observe and develop clinical interviewing skills with outpatients with psychiatric disorders. The student will also be supervised to complete an entire manuscript (start to finish) in a form suitable for submission to a peer-reviewed medical journal. Learning experiences will include: 1) working intensively with a rich dataset from a sample of psychiatric outpatients with depression; 2) learning about standardized and validated psychometric measures of depressive symptoms, functional impairments, behavioural domains, cognition, and other outcomes; 3) cleaning and evaluating primary data, identifying valid data points for analysis, and conducting step-by-step analyses using a software package; 4) evaluating secondary data sources and conclusions; 5) interpreting results critically in the context of research on biomarkers, and clinical practices in mental health treatment; and 6) formulating recommendations, such as how future studies can be designed to introduce/improve and evaluate interventions. The student will receive training and mentoring to complete tasks that are complex and/or require independent judgment. Supervision will be direct and ongoing from expert health care professionals with strong track records of research, publication, and grant funding. More generally, the student will work in a collaborative, multidisciplinary team within an integrated clinical research setting (with both a psychiatric clinic in a teaching hospital, and a research unit inside a large academic department). This position offers a wide range of learning opportunities involving practical applications of biomedical course content, including research methodology, statistical analysis, research ethics, mental health care diagnosis and treatment, health care service delivery, clinical trials, psychopharmacology, and knowledge translation/exchange. The student can also observe and learn about several ongoing, high-profile, innovative research projects involving mental health, and (upon mutual agreement) can contribute to such projects during the funding period. In addition, the student will benefit from many occasions for professional development, specialized training, feedback and mentoring, and networking with distinguished clinician-scientists.   |

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| **Please indicate if your project requires the following and indicate their status as appropriate.** This will help clarify the scope of the project for potential student partners. |
| **This project requires ethics approval (human or animal):**[x]  Yes [ ]  NoIf yes please indicate if you:[x]  Already have approval [ ]  Will obtain approval before the SSRP funding period [ ]  Intend for ethics application to be a focus over the funding period\*Please note that as ethics approval can be a lengthy process it is recommended that this be obtained well in advance of the funding period unless the intention is for this activity to form a major part of the FoM SSRP-funded portion of the project.**This project requires access to electronic medical records:**[ ]  Yes [x]  NoIf yes please indicate if you:[ ]  Already have approval [ ]  Will obtain approval before the SSRP funding period [ ]  Plan to obtain approval during the SSRP funding period**This project requires operational/institutional approval:**[x]  Yes [ ]  NoIf yes please indicate if you:[x]  Already have approval [ ]  Will obtain approval before the SSRP funding period [ ]  Plan to obtain approval during the SSRP funding period |

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| **Research Location (As applicable, indicate where the project will be conducted.)** |  |
| City or Region:  Vancouver    Research Centre:    Djavad Mowafaghian Centre for Brain Health  Hospital:   UBC Hospital   Program or Unit:  Mood Disorders Centre    Additional information (building, lab etc.):       |  |
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| **Supervisor’s Information** |
| **Supervisor Last Name:**   Lam    | **Supervisor First Name:**  Raymond    |
| **FoM Department/School (Main FoM Appointment):**  Psychiatry    | **UBC FoM Division (if applicable):**  Mood & Anxiety Disorders    |
| **Preferred contact method (for students)**[ ] Phone supervisor[x] Email supervisor | [ ] Phone alternate contact[x] Email alternate contact |
| **Preferred Phone:**  604-822-7872    | **Supervisor Rank (Instructor, Professor etc.):**  Professor    |
| **E-mail Address:**   r.lam@ubc.ca    |  |
| **Optional Alternate Contact** (e.g. co-supervisor, research/lab coordinator, assistant etc.) |
| **Contact’s Name:** Vanessa Evans     | **Contact’s Role:**  Research Manager    |
| **Contact’s Phone Number:**  604-822-8012    | **Contact’s E-mail Address:**  vanessa.evans@ubc.ca    |