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Postdoctoral Fellowship Opportunity - Laval University - Québec, Canada

Deciphering the epigenetics code underlying the expression of major depressive disorder in men and women

The Labonté lab is opening a postdoctoral position for a highly motivated postdoctoral fellow interested in studying the epigenetic regulation of sex-specific gene networks across brain regions from men and women suffering from MDD. This project relies on solid findings published from our lab showing that the transcriptional organization of gene networks across brain regions from men and women with MDD is highly sexually dimorphic and that these sex-specific gene networks control different aspects of emotional stress responses in males and females. The aim of this project is to reveal the epigenetic landscape across brain regions from men and women with MDD and confirm the impact of epigenetic changes on the activity of sex-specific gene networks and their control over emotional responses to chronic stress in males and females.

The successful candidate should possess a PhD degree in either molecular or cellular biology, genetics, neuroscience or any other relevant disciplines with an established record of productivity in the respective fields of research. The project implies combining approaches to screen histone modifications, chromatin confirmation/occupancy and DNA base modifications in post-mortem tissue from men and women with MDD. The relationship between the layers of epigenetic complexity and the transcriptional organization of gene networks in men and women with MDD will be assessed by bioinformatically. In the lab, this will be first performed by delivering epigenetic modulators at regions of interest in human NPS cell lines and ultimately in mouse models using conditional viral approaches in transgenic mouse lines. This is a truly translational project with direct clinical implications in human populations. This project is fully funded and in-house bioinformatics expertise is already established.

The candidate should have proven expertise in basic and advanced molecular techniques related to the study of epigenetic, chromatin or DNA base modifications. The candidate should also have a strong experience with cell line maintenance and manipulation. Experience with animal work and stereotaxic viral delivery would be important assets. Proficiency with R or Python coding is a plus. The successful candidate will be responsible to coordinate and perform the experiments, collaborate with MSc and PhD students in the lab, write manuscripts and present its work at national and international scientific meetings. By joining the group, the candidate will integrate a multidisciplinary team of experts in molecular, cellular and integrative neuroscience located at the CERVO Brain Research Center affiliated with Laval University in Quebec City, Canada.

The CERVO Brain Research Center is a leading multi-disciplinary research and training environment with >40 laboratories and over 250 trainees and staff pursuing basic and clinical neuroscience research. It offers a transdisciplinary environment with state-of-the-art facilities aiming to understand the central nervous system at the molecular, cellular, systems, and clinical levels in normal and pathological states. The CERVO is located in Quebec City, one of the oldest cities in North America and a UNESCO World Heritage travel destination. As a cultural center of North America, Quebec City is also a truly affordable city with a European flair. The city is embedded in a region rich in nature that offers an abundance of outdoor summer and winter activities. The CERVO is a fully bilingual environment and, while several options to learn French are available, the English language is prioritized in the lab.

Applicants are required to send a motivation letter and their scientific CV with three reference contacts at the following email address: benoit.labonte@fmed.ulaval.ca.

June 2021