



Project title	Understanding Rare Genetic Variation and Disease Risk: A Global Neurogenetics Initiative		
Study level(s)	<input type="checkbox"/> MSc	<input checked="" type="checkbox"/> PhD	<input checked="" type="checkbox"/> Postdoctorate
Principal investigator(s)	Sébastien Jacquemont (principal investigator at the CHUSJ)		
Project duration	5 years		
Start date	As soon as possible		

Date of posting: 2024-11-19

Research laboratory presentation

Dr. Sébastien Jacquemont's laboratory is recruiting a talented postdoctoral researcher or a doctoral candidate to study the genomic determinants of neurodevelopmental and psychiatric disorders and their effects on brain structure and function. Dr. Jacquemont's laboratory is coordinating a project within ENIGMA CNV in collaboration with the groups of Carrie Bearden (UCLA), Paul Thompson (USC), Tomas Paus (UdeM), Ole Andreassen (University of Oslo), Danilo Bzdok, and Celia Greenwood (McGill). The project aims to understand the relationships between the effects of genomic variants on cognition and behavior, as well as brain structure and function.

The laboratory offers a stimulating and international environment. Close collaboration between laboratories in the United States, Canada, and Europe allows students to be co-supervised by multiple researchers and gain additional expertise in international laboratories. Additionally, they will have the opportunity to attend summer courses on specific topics. Presenting research at international conferences is also expected.

Research project description

The analyses will be performed on cohorts of the general population and psychiatric population using cognitive, neuroimaging, and genomic data. The dataset includes between 100,000 and 800,000 individuals depending on the phenotypic measures. Genetic variants (CNVs and SNVs) will be identified from genotyping chip data and whole-genome sequencing. Functional annotation of genes will be conducted using transcription data, such as the topological distribution of gene expression in the brain and different cell types.

Required training and profile

The ideal candidate will be highly motivated to gain expertise in order to bridge different disciplines, including genomics, neuroimaging, and dimensional measures of behavior and cognition.

We recommend a solid background in genomics, bioinformatics, and data science and should have coding skills using either R, Python, or Matlab.

Conditions

Internship conditions



Submit your application

Candidates must send the required documents before **10/01/2025** to Sébastien JACQUEMONT at sebastien.jacquemont@umontreal.ca and Laura PEYRAS at laura.peyras2.hsj@ssss.gouv.qc.ca.

Please provide:

- ✓ *Curriculum vitae*
- ✓ Most recent transcripts
- ✓ Cover letter
- ✓ References

Equity, diversity and inclusion

The masculine gender is used without discrimination and for the sole purpose to facilitate reading. The CHU Sainte-Justine subscribes to the principle of equal access to opportunities and invites women, members of visible and ethnic minorities, persons with disabilities and Indigenous people to apply. We would appreciate it if you could inform us of any disabilities that would require technical and physical accommodation adapted to your situation during the selection process. Please be assured that we will treat this information as confidential.

Studies at the CHU Sainte-Justine Research Center

Pursue your [graduate or postdoctoral studies](#) at the **CHU Sainte-Justine Research Center**, and be one of the 500 students, fellows and interns involved in accelerating the development of knowledge in the field of maternal, child and adolescent health, whether in basic or clinical research. Under the supervision of prominent scientists, especially in leukemia, rare pediatric diseases, genetics, perinatology, obesity, neuropsychology and cognition, scoliosis and rehabilitation, you will have the opportunity to work with multidisciplinary scientific teams and collaborators from all over the world.

About the CHU Sainte-Justine Research Center

CHU Sainte-Justine Research Center is a leading mother-child research institution affiliated with Université de Montréal. It brings together more than 200 research investigators, including over 90 clinician-scientists, as well as 500 graduate and postgraduate students focused on finding innovative prevention means, faster and less invasive treatments, as well as personalized approaches to medicine. The Center is part of CHU Sainte-Justine, which is the largest mother-child center in Canada and the second most important pediatric center in North America. More on research.chusj.org

