



Project title	Virologic determinants of cytomegalovirus transmission		
Study level(s)	<input type="checkbox"/> MSc	<input checked="" type="checkbox"/> PhD	<input checked="" type="checkbox"/> Postdoctorate
Principal investigator(s)	Soren GANTT, MD PhD MPH, Martin Smith (co-supervisor)		
Project duration	4 years		
Start date	From June 1, 2022 to September 1, 2022		

Date of posting: 2022-05-21

Research laboratory presentation

The Gantt Lab has a number of projects related to CMV virology and immunology that aim to better understand how the virus is transmitted, in order to inform the development of effective prevention strategies, including the development of an effective vaccine. These studies use a wide variety of approaches: using samples from human longitudinal cohort studies of mother-infant CMV transmission pairs, mouse models of infection using recombinant murine CMV constructs, mathematical modeling, and clinical trials of CMV vaccines.

Research project description

Most people in the world become infected with CMV, though contact with the virus in breast milk, saliva, urine or genital fluids. However, the vast majority don't even realize it because it rarely causes symptoms in people with a healthy immune system. However, CMV is the most common congenital infection, causing permanent neurodevelopmental disability in thousands of Canadian children every year. Surprisingly, the risk of congenital CMV infection is *higher* among infants born to women with immunity to CMV from past infection. These "non-primary" infections appear to result primarily from reinfection during pregnancy with a different strain of CMV. Thus, understanding the importance of specific CMV variants and of CMV genetic diversity for infection and reinfection is critical for developing a vaccine that is superior to natural immunity, in order to reduce the global burden of congenital CMV infection.

The Gantt Lab seeks PhD students and/or postdocs to work on:

- Projects related to next-generation sequencing of CMV transmitted/founder viruses obtained from natural infection, and bioinformatic analyses of CMV genomic diversity and selection
- Structure-function analyses to determine the phenotypic relevance and relative fitness of viral genotypes implicated in CMV transmission and reinfection
- Mouse models of CMV reinfection, using recombinant viral constructs, and involving the use of live bioimaging, immunohistochemistry, flow cytometry, and other techniques

Required training and profile

Training: MSc or PhD in virology, immunology, bioinformatics or a related field.



General: The ideal candidates will have outstanding general lab skills and attention to detail, work well with others, be industrious, reliable, conscientious, intellectually curious, able to solve problems independently, and communicate well.

Specific expertise (not necessarily needed, but are assets): facility with DNA extraction methods, qPCR, high-throughput sequencing, and other molecular methods; tissue culture; mouse work; bioinformatics and statistical modeling.

Conditions

The candidate must register at the Université de Montréal in the PhD Program in Microbiology and Immunology, or as a postdoctoral fellow, and must meet the eligibility requirements.

Funding will be provided for the first year via Dr. Gantt's research funds. Trainees will be responsible for applying for scholarships through CHU Sainte-Justine and the Université de Montréal, as well as from external sources.

Postdoctoral fellows receive a stipend (SPB category, "stagiaires postdoctoraux boursier") at the CHU Sainte-Justine, and not a salary. They are therefore not eligible to receive marginal benefits, employment insurance or retirement pension benefits. Taxes will be deducted at the source when the stipend is paid from the director's research funds.

The duration of the research project is conditional to:

- The availability of research funds;
- The progress of the project;
- The candidate's eligibility to maintain a postdoctoral fellowship status at the university.

Submit your application

Candidates must send the required documents to **Dr. Soren GANTT** at soren.gantt@umontreal.ca

Please provide:

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

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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

