Master, doctoral and postdoctoral students
CHU Sainte-Justine Research Center

Principal Investigator(s)	Pierre Hardy, Ph.D.
Project duration	2 to 5 years
Start date	January 2019

CHU Sainte-Justine
Research Center
Mother and Child
University Hospital Center

Université de Montréal

Research laboratory presentation

Our nanomedicine laboratory covers the areas of drug delivery in the form of nanoparticles and possible future applications of molecular nanotechnology. The focus is on original and translational research to find diagnostic and therapeutic solutions for life-threatening diseases such as cancer and cardiovascular disease. More specifically, we are conducting research on microvesicles of cellular origin and their impact on several disease models, including retinopathy of prematurity, age-related macular degeneration, breast and ocular cancer. Our research group based at the CHU Sainte-Justine Research Center, affiliated with the Departments of Pediatrics, Pharmacology and Physiology at the Université de Montréal, is composed of an interdisciplinary team.

Research Projects

In medicine, nanoparticles promise to revolutionize drug delivery, gene therapy, diagnostics, and several areas of research, development, and clinical application. Our laboratory currently has several research topics in nanomedicine.

• Effects of microvesicles and cellular exosomes in the development of ocular pathologies / role of oxidative stress (e.g. macular degeneration).
• Emergent role of cellular microvesicles for the treatment of ocular pathological angiogenesis (e.g. retinopathies, age-related macular degeneration).
To understand how microvesicles interrupt VEGF signaling in pathological neovascularization and to provide therapeutic strategies (pharmacological or molecular) aimed at reducing abnormalities of neovascularization and degeneration of neuronal tissues in various pathological processes.
• Research on nanoparticles that deliver chemotherapeutic drugs directly to tumor tissue (e.g. glioblastoma, retinoblastoma) or nanoparticles that can be used in hyperthermia to inhibit tumor growth (retinoblastoma). This technique reduces damage to healthy cells in the body.
• Effects and mechanisms of cellular nanoparticles (microRNAs) in cancer (breast cancer, glioblastoma, and retinoblastoma).
• Another area of research concerns the role of microvesicles of cellular origin on the modulation of tissue microenvironment (modulation of the function and phenotype of macrophages and microglia).

Required training and profile

We are looking for highly motivated and energetic students who wish to pursue a Master's, PhD or postdoctoral degree in either Biomedical Sciences, Biology, Biochemistry, Pharmacology, Physiology or the equivalent with an average above 3.2 out of 4.3. An expertise in immunology would be a great asset. The selected student must be motivated, dynamic and have a good team spirit. English or French skills are required.

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Conditions of internship

The selected student will receive a scholarship according to the FRQS or CIHR scales. Applying to Granting Agencies Training Awards is strongly encouraged

Submit your application

Candidates must apply before 12/2018. Interested candidates must submit the following documentation to Pierre Hardy at pierre.hardy@recherche-ste-justine.qc.ca

√ Curriculum vitae
√ Transcripts
√ Cover letter
√ References

Full recipient's address:

Dr. Pierre Hardy MD, PhD
Centre de Recherche du CHU Sainte-Justine
3175 chemin Côte-Sainte-Catherine
Montréal, Québec, H3T 1C5

How is it like to study or make a fellowship 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 385 students, fellows and interns who are helping to fast track the development of knowledge in the field of mother, child and adolescent health. 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 385 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 second most important pediatric center in North America. More on research.chusj.org