

Faculty of Medicine
Université de Montréal

Quest for excellence

Université 
de Montréal



in the service
of health!



Among the best

UNIVERSITÉ DE MONTRÉAL AT A GLANCE :

The first

teaching and research institution in Québec.

The second

largest student body in Canada, with over 62,000 students.

The fourth

most dynamic research university in Canada, with research income exceeding half a billion dollars.

106th

in the prestigious *Times Higher Education* ranking, and the only French-language university in Canada to be among the top 150 universities in all international rankings.

With 16 faculties and schools, 250 undergraduate and 350 graduate programs, the Université de Montréal offers one of the widest choices of academic programs in North America.

As a key player in interdisciplinary exchanges, the Université de Montréal is the only Canadian university to cover the full range of disciplines in the health sciences.



Faculty of Medicine

MISSION

The Faculty of Medicine is a pioneering institution dedicated to education and research based on ACTIVE participation in the advancement of knowledge and the development of skills to improve health care.

Its guiding values and principles include innovation, respect, social commitment, responsibility, thoroughness, patient partnership and improving health and well-being.



Faculté de médecine

Université 
de Montréal



FACULTY OF MEDICINE AT A GLANCE:



Largest

number of medical school admissions in North America.

First

in Canada for the number of admissions in medicine, physiotherapy, occupational therapy, speech-language pathology and audiology.

Only

medical school in Canada with a nutrition department.

Receives two-thirds

of the research grants awarded to the Université de Montréal.

One of the widest ranges

of postgraduate medical programs in Canada, with 73 residency programs.

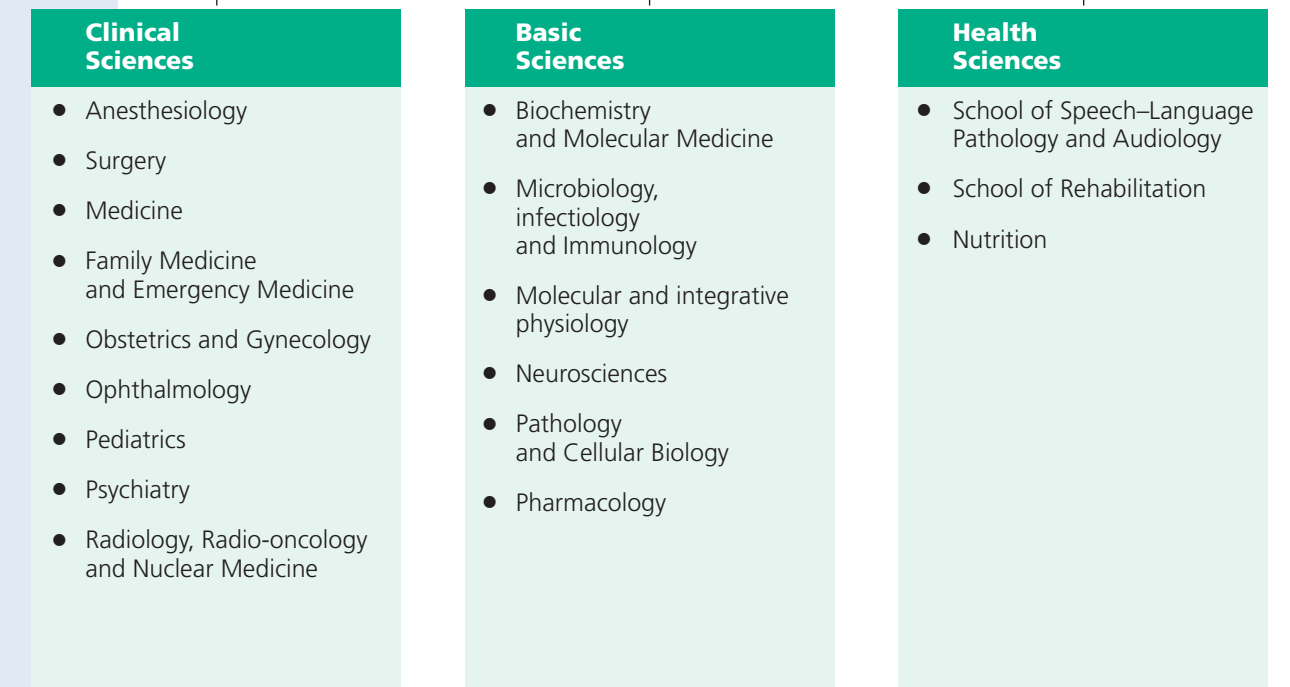
First

medical school in Québec to create a regional campus offering complete medical training (Campus de l'Université de Montréal en Mauricie).

As an internationally renowned institution and one of the university's founding faculties, the Université de Montréal's Faculty of Medicine has the threefold mission of education, research and the improvement of health in the areas of clinical sciences, basic sciences and health sciences. With its 170 years of history, it has literally accompanied the development of modern Québec. It has 16 departments, two schools and more than 700 professors (excluding clinical professors), serving more than 6000 students. A third of the physicians in Québec and a large number of health professionals in the province have been trained at the Faculty of Medicine. In addition, it recently contributed to the founding of a school of public health at the Université de Montréal.

Through its extensive health network and the major responsibilities it has been given by the government of Québec in terms of health care, the Faculty of Medicine plays a leading social role.

3 areas, 16 departments, 2 schools



Campus de l'Université de Montréal en Mauricie



Opened in 2004, the Campus de l'Université de Montréal en Mauricie is the first regional campus in Québec offering the full 5-year medical program.

The campus was created out of the Faculty of Medicine's desire to offer advanced training outside major urban centres and to increase the number of graduates.

The campus aims to train doctors in the region, promote family medicine as a career choice, and attract and retain an increasing number of doctors in this region, which is greatly affected by a shortage of medical personnel. It has achieved its goals since many graduating students have chosen to practice and to teach there.

Training at the Mauricie campus is of the highest calibre, as evidenced by the excellent results posted by its students year after year at the Medical Council of Canada examinations. In fact, its students ranked first in 2010. The success of the Mauricie campus lies in the personalized training it offers its 200 students as well as the expertise and tradition of excellence provided by the Université de Montréal's Faculty of Medicine.

Well integrated in the community, the Mauricie campus is the result of an innovative alliance between the Faculty of Medicine and the university affiliated regional teaching hospital (CHAUR), part of the Trois-Rivières health and social services centre (CSSS), an important multidisciplinary health care centre on the cutting edge of technology.

Several other partners have joined the alliance, including the Centre de santé et des services sociaux (CSSS) de l'Énergie in Shawinigan and the Université du Québec à Trois-Rivières. These partners have proven invaluable in terms of quality of training and public services.



Physiotherapy program

EDUCATION FOR HEALTH CARE

Major achievements in recent years

The Centre de pédagogie appliquée aux sciences de la santé (CPASS) is responsible for training the teaching staff of the Université de Montréal's Faculty of Medicine as well as for the continuing education of practicing health professionals. The CPASS team includes physicians, other health professionals, education scientists and trainers, working together to transform our health programs by promoting the competency-based approach. The creation of this centre reflects the sustained interest and prominence given to teaching by our institution, especially over the last two decades.

Set up in 2009, the Centre d'apprentissage des attitudes et habiletés cliniques (CAAHC) uses simulation for student training and skills development. The Centre de simulation is one of Canada's largest facilities of this type, with a capacity of 1000 students per month. Training is carried out using models that allow students to become familiar with different scenarios, such as cardiac arrest and childbirth. These simulations enable advanced training in a secure environment. Interdisciplinary and collaborative practices are at the heart of the Centre's approach to learning and foster teamwork.

As with research, education is central to the Faculty of Medicine's mission. The excellence of its programs is widely recognized, and the Faculty of Medicine stands out as a leader in the competency-based approach, in collaborative interdisciplinary practices, in its expertise in the "patients as partners in care" approach and in promoting the well-being of students.

Created in 2010, our courses in health collaboration allow future health and psychosocial sciences professionals to learn interprofessional collaborative practices. Students from more than ten health profession training programs have the opportunity to explore the scope of practice of their colleagues in other disciplines and learn to work in interprofessional teams in order to provide patients with quality care.

The Direction collaboration et partenariat patient (DCPP) promotes the patient perspective at the Faculty of Medicine and throughout its network of institutions in order to contribute to education, research and care. It works to establish constructive and sustainable partnerships with physicians and medical students and to develop collaborative relationships with patients and their families. It proposes a new vision of the relationship between doctors and patients in which patients, no longer at the periphery but at the heart of the dynamic of care, gradually become the main actors in their own clinical pathway, with the support of health professionals.

In 2011, the Faculty of Medicine created an associate vice-dean's office for student and faculty life, which includes the Bureau d'aide aux étudiants et aux résidents (BAER). The office has a dual mission: to promote the well-being of students, residents, faculty, and staff, and to intervene preventively at the earliest signs of distress. The office develops and implements initiatives inspired by and adapted from the innovative "ESSENCE of Health" approach developed at Monash University in Melbourne, Australia. ESSENCE is an acronym which stands for Environment (interventions on the physical, psychological and social environment), Stress (stress management), Spirituality (meaning and/or purpose in one's life), Education (knowledge relevant to preventing illness), Nutrition, Connectedness (social network and civic engagement) and Exercise (physical activities).

Since January 2011, the Faculty of Medicine has been working to restructure its medical program (MD). The project, which has involved more than 150 participants from a variety of backgrounds, aims to design and implement a new MD program that will train doctors to use their knowledge and skills in a more critical and thoughtful way, in partnership with patients and care teams.

Largest health network

Due to its vast territory, the integrated university health network (RUIS) of the Université de Montréal is responsible for 41% of Québec's health care needs, which makes it the largest health network in the province, serving more than 3.2 million people. Indeed, for many highly specialized areas, such as lung transplantation, several institutions serve the entire Québec population. The Université de Montréal RUIS also has the largest number of member institutions and more than 1000 training centres in the health sciences. Students at the Faculty of Medicine thus benefit from a variety of internship and residency sites offering high quality training.

The network includes:

- 2** university health centres (CHUM and CHUSJ)
- 3** university health institutes (MHI, IUGM, IUSMM)
- 4** university affiliated centres (HSCM, HMR, CHAUR du CSSS Trois-Rivières, CSSS Chicoutimi)
- 5** affiliated hospitals and institutes (IRGLM, HRDP, IPPM, CSSS Laval, CSSS Sud-Ouest-Verdun)
- 23** hospitals and health and social services centres (CSSS), many with contract or service agreements.



Promoting excellence in research



AREAS OF RESEARCH EXCELLENCE

Diseases are increasingly complex and multifactorial, and health research is a long-term activity taking several years of work before achieving results; it thus requires significant funding, both from governments and from the private sector. Adequate funding brings together the best minds around dynamic research teams that can achieve the best results, within a reasonable timeline.

The Faculty includes more than 800 nationally and internationally recognized research professors working within an extensive network of research centres and health research institutes.

Research funding at the Faculty of Medicine represents two-thirds of all institutional funding at the Université de Montréal. The institution ranks third among Canadian medical schools for grants from the Canadian Institutes of Health Research (CIHR). In Québec, the institution ranks first in grants from the Fonds de recherche du Québec–Santé (FRQ-S).

Cardiology, metabolism, and nutrition

Immunology and oncology

Neurosciences, mental health, and sensory disturbances

Genetics and genomics

Human development: perinatal care and aging

These five priority areas guide the Faculty's research efforts.



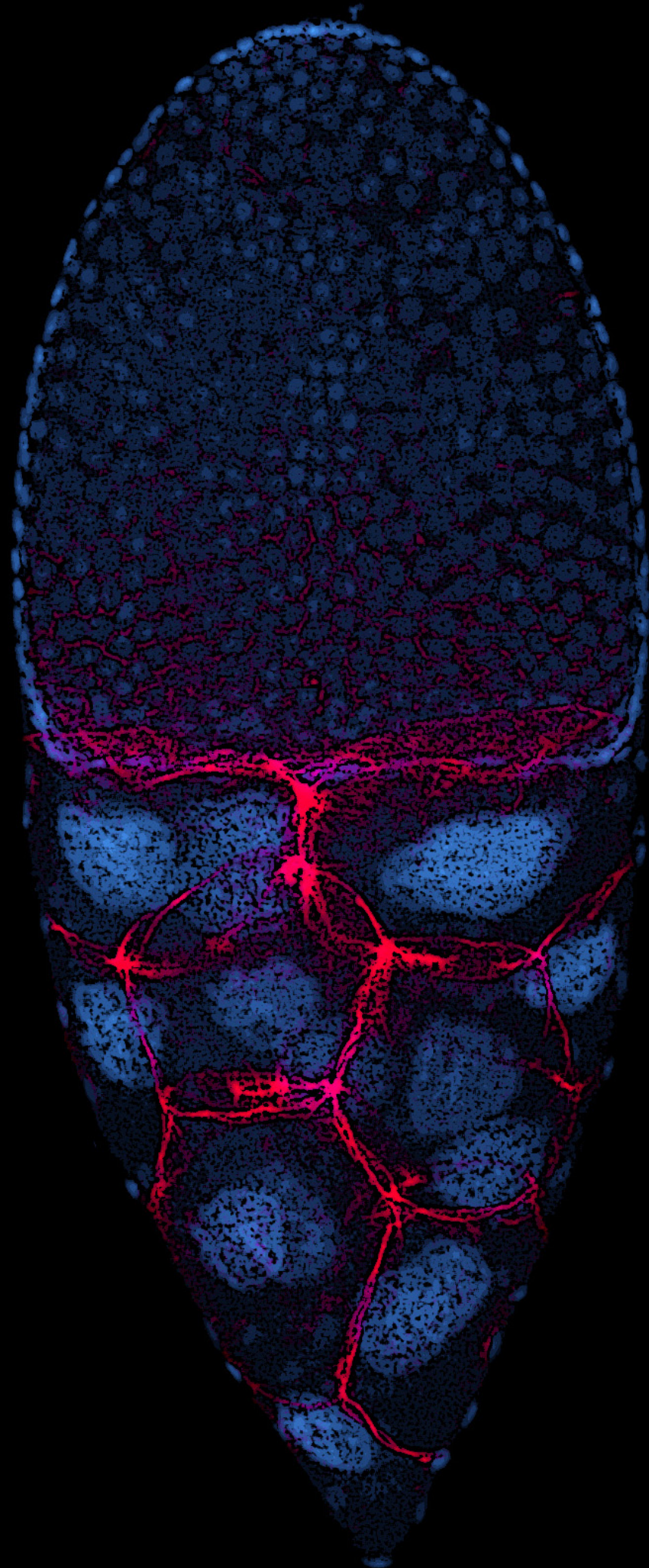
CARDIOLOGY, METABOLISM, AND NUTRITION

Collaboration: Campus UdeM, CHUM, CHUSJ, MHI and IRCM

Obesity is growing at an alarming rate, and type-2 diabetes has reached epidemic proportions; these two have become major public health issues to the same degree as infectious disease epidemics in the past. The Montreal Diabetes Research Center, which gathers researchers from the research centre of the CHUM and the Institut de recherches cliniques de Montréal (IRCM), focuses on these important health issues. Scientific breakthroughs that lead to better understanding of the relationship between obesity, diabetes, cardiovascular disease, prevention factors and effective therapeutic methods thus have a major impact on everyone's health.

The Faculty of Medicine benefits from the expertise of several leading researchers in this area and is associated with numerous recognized institutions that bring together teams that are active in the prevention and treatment of cardiovascular disease. Notable among these are the research centres of the CHUM and the Centre hospitalier universitaire Sainte-Justine (CHUSJ), the Montreal Heart Institute (MHI), the ÉPIC centre, the IRCM and the Groupe d'étude des protéines membranaires (GÉPROM) on campus.

The Montreal Heart Institute is an undisputed international leader in the field of cardiovascular disease. The Institute conducts both basic and clinical research, focussing on acute or chronic coronary artery disease, cardiac surgery, cardiac arrhythmias, heart failure, rehabilitation, prevention, diagnostic and therapeutic technology, and cardiovascular magnetic resonance (CMR). All of the MHI's basic research is integrated with clinical research, and areas of investigation include vascular pathologies and atherosclerosis, congestive heart failure, congenital heart disease, valvular heart disease and regenerative medicine. The MHI is in the forefront in studies on cardiac arrhythmias and sudden death. The development of structural, molecular and functional imaging is an active subject of research in photonics, positron emission tomography (PET) and magnetic resonance. Genomics, proteomics, metabolomics and prevention are incorporated into all research topics, with a goal to developing personalized treatment protocols.



Discovery of a new mechanism for regulating collective cell migration (IRIC)

IMMUNOLOGY AND ONCOLOGY

Collaboration: Campus UdeM, CHUM, CHUSJ, Hôpital Maisonneuve-Rosemont (HMR) and IRIC

Cancer has become the leading cause of mortality and morbidity in Canada. Several Université de Montréal research teams have become internationally recognized for their pioneering work in the field of cancer and have established recognized centres of excellence, including the Centre intégré de cancérologie of the CHUM, the CHUSJ, the Institut de recherche en immunologie et cancérologie (IRIC), and the HMR research centre (CRHMR).

The HMR's Centre of excellence in cellular therapy (CETC) is the only centre in Canada to fully meet Current Good Manufacturing Practices (cGMP) guidelines and one of the few organizations in the world to receive this recognition. The facility promotes the development of regenerative medicine applied to blood cancers and several other pathologies that may be treated using stem cells to regenerate undifferentiated diseased tissues. Research conducted by these teams will lead to a better understanding of the cancer process and to the development of new therapeutic approaches to improve cure rates.

IRIC researchers are working to understand the mechanisms of cancer and to accelerate the discovery of new therapies using its medicinal chemistry platform and its research commercialization institute, IRICoR (Network of Centres of Excellence). IRICoR works closely with the HMR and the CHUM.

Cancer study at the CHUM's research centre (CRCHUM) brings together clinical researchers, basic researchers and epidemiologists. It focuses on treatment and chemoprevention; genetic and environmental risk factors; growth, apoptosis, and angiogenesis; tumour cell biology; immunology; oncology; and molecular medicine. The CHUM's infection, immunity and inflammation theme aims to foster interactions between basic and clinical research in areas affecting the body's defence mechanisms. Research focuses on arthritis and inflammatory disorders of the hepatic and gastrointestinal systems, as well as the responses of the immune system to stresses such as infections, allergies, burns, and transplants.

Among the priorities of the CHU Sainte-Justine's research centre (CRCHUSJ) are studies of viral diseases, autoimmune diseases and cancer. This research is characterized by innovative experimental approaches such as bio-informatics, and molecular and cellular biology. Again, a multidisciplinary approach is favoured, with expertise in multiple areas.



NEUROSCIENCES, MENTAL HEALTH, AND SENSORY DISTURBANCES

Collaboration: Campus UdeM, CHUM, CHUSJ, CRIR, GRSNC, HSCM, HMR, IRCM, IUSMM and IUGM.

The Faculty of Medicine has a tradition of excellence in neurosciences. On-campus research activities are carried out by the Groupe de recherche sur le système nerveux central (GRSNC), the Department of Neurosciences, the Department of Pharmacology, and the Department of Pathology and Cell Biology, among others. Off-campus groups also excel in this field, including the CRCHUM, which has a strong focus in this area. Research groups are also present at the Hôpital du Sacré-Cœur de Montréal (sleep research), the Hôpital Sainte-Justine (neurodevelopment), and IRCM (neurobiology and neurodevelopment).

Two additional cross-cutting research areas, aging and rehabilitation, bring together researchers particularly interested in neurodegenerative diseases and neurological rehabilitation.

In 2011, the designation of the Hôpital Louis-H. Lafontaine as a mental health university institute ensured that the Centre de recherche Fernand-Seguin (CRFS) and its affiliated partners will continue to lead in the development of mental health research. The *Banque Signature* is a unifying and innovative project that aims to collect a set of biological, psychosocial, cognitive and clinical data of patients suffering from mental disorders. The goal of the project is to draw a portrait of each patient's mental state to customize their care.

Ultimately, the data obtained in this project will enable early detection of mental disorders. The Institut Philippe-Pinel is an important partner whose goal is to become the preeminent centre in forensic psychiatry, while the Hôpital Rivière-des-Prairies' research centre specializes in tertiary mental health issues in terms of causes, associated diseases and interventions.

In recent years, research into sensory disorders has increased significantly through the continued focus of the CRHMR on vision health research. The Centre d'excellence en santé de la vision is part of the HMR and its research activities are concentrated on diseases of the retina, glaucoma and corneal transplantation.

GENETICS AND GENOMICS

Collaboration: Campus UdeM, CHUM, CHUJS and MHI

The cross-cutting aspect of genomic medicine explains why many research centres are interested in these areas. Genetics and genomics research can be applied to psychiatry through the previously mentioned *Banque Signature*, to cardiology through the MHI's projects, to pharmacogenomics at the CHUM, and to neurology and pediatrics at the Hôpital Sainte-Justine. With the view of optimizing its basic science departments, the Faculty of Medicine wishes to develop strong graduate studies programs in genetics and genomics. The Department of Biochemistry and Molecular Medicine will contribute to this development with its expertise in genetics, including bio-informatics, genomics and proteomics, gene expression, and cellular signalling, which can readily meet the needs in human genetics research.

The teams at MHI and at CRCHUSJ are on the cutting edge of technology and expertise in genetics and bio-informatics. Developments in these growth areas have several impacts in the clinical field. Personalized medicine takes into account the genetic profile of each individual to customize medical treatment. New knowledge about the human genome and gene function will lead to innovative therapeutic solutions for many diseases. Pharmacogenomics will eventually be able to predict the therapeutic responses of each patient to a particular treatment. Research in this area will not only improve the effectiveness of prescribed treatments, but will also reduce their harmful effects. The MHI Laboratory in Genetics and Genomic Medicine of Inflammation develops and applies novel approaches for identifying genetic risk factors for common diseases affecting the cardiovascular (e.g., atherosclerosis, systemic lupus erythematosus), gastrointestinal (e.g., Crohn's disease, ulcerative colitis), articular (e.g., rheumatoid arthritis), and nervous (e.g., multiple sclerosis) systems. These diseases all cause chronic inflammation.

The CRCHUSJ cardiovascular genetic research laboratory studies the causes of congenital heart malformations. Genetic research is also used to understand metabolic problems, through the analysis of founder effects and genetic variability in Québec. In 2008, the CHUSJ research centre inaugurated its new laboratory for research into the molecular genetics of musculoskeletal diseases in children. The research centre also hosts CARTaGENE, with its biorepository and health database of Quebeckers.



HUMAN DEVELOPMENT: Perinatal Care and Aging

Collaboration: CHUSJ and IUGM

Perinatal research requires multidimensional approaches (neonatology, foetal diagnosis, prevention of adverse effects of therapy, pharmacology applied to the mother and child), of the kind used by the CRCHUSJ, which includes researchers and students from various fields, all working to develop personalized medicine and to identify new, faster and less invasive prevention and treatment methods.

The problem of aging is the focus of research at the IUGM. The aim of this research is to provide seniors with the best possible health and quality of life. Research at the institute addresses various aspects of aging and has led to the development of assessment and rehabilitation tools that contribute to the day-to-day autonomy and well-being of seniors.



EMERGING AREAS OF RESEARCH

The Faculty of Medicine is engaged in emerging areas of research, sometimes in partnership with other faculties of the Université de Montréal, HEC Montréal (business), and Polytechnique Montréal (engineering).

Faculté de médecine

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MEDICAL AND MOLECULAR IMAGING

Medical imaging is an essential tool in the diagnosis and, in some cases, treatment of various diseases. The Faculty of Medicine has achieved excellence in the areas of medical imaging applied to cardiology (MHI), neurological sciences (CHUM) and the basic sciences of cellular and structural biology (Campus and IRIC).

Focus to date has been on the morphological study of organs. For example, we can now better assess how the heart and brain function and determine the effects of certain pathologies on them through imaging.

We are now working on the development of dynamic 3D imaging and imaging of individual macromolecules, which will provide an entirely new perspective in the functional exploration of the human body, the cells and their macromolecular components. The Université de Montréal will thus be positioned as a world leader in medical and molecular imaging.

Many resources are available on campus and at affiliated imaging centres, and the Faculty of Medicine is working to enhance imaging networking among research centres. The significant resources of various centres, including the MHI, CRCHUM, HSC, and IUGM, will contribute to this end.

REHABILITATION

Rehabilitation research is a developing field that has gained prominence in recent years. The Faculty will continue to link such research activities with those of the network. The CRHUSJ and the Centre de réadaptation Marie Enfant (CRME) will soon invest heavily in this area of research. Trauma-related research activities between the CRHSCM and the CRIR will also be integrated. Service corridors already exist, in fact, between the IRGLM and HSC centres of expertise in these areas, and the Faculty of Medicine intends to leverage this uniqueness in the health network to remain a leader in rehabilitation.

PRIMARY CARE, CHRONIC DISEASE

The CIHR has implemented a FRQ-S patient-based research strategy that is complemented by the strategy for patient-oriented research (SPOR) provincial program. In this context, the Faculty of Medicine will invest in primary care research, in particular, to carry out a major recruitment drive to ensure a critical mass of researchers in the coming years. The Department of Family and Emergency Medicine will take a leading role in this development.

DRUG DEVELOPMENT

In line with Université de Montréal's priorities in the sector of drug development, are the GRUM (Groupe de recherche universitaire sur le médicament) and the MÉOS (Médicament comme objet social) team, which bring together researchers specialized in the discovery, development and assessment of pharmaceutical drug use and its social impact. A number of these researchers created the QNDR (Québec Network on Drug Research), which coordinates expertise and technological resources province-wide. Furthermore, the Faculty runs a centre of excellence in marketing and research, IRICoR (Institute for Research in Immunology and Cancer – Commercialisation of Research) with the mission of accelerating the discovery and commercialization of novel drugs and treatments against cancer from the Université de Montréal.

Acronyms

BAER:	Bureau d'aide aux étudiants et résidents (student and resident assistance office)
CAAHC:	Centre d'apprentissage des attitudes et habiletés cliniques (clinical attitudes and skills learning centre)
Centre ÉPIC:	Étude Pilote de l'Institut de Cardiologie (Montréal Heart Institute pilot study)
CETC:	Centre d'excellence en thérapie cellulaire (centre of excellence in cellular therapy)
CHAUR du CSSS de Trois-Rivières:	Centre hospitalier affilié universitaire régional du Centre de santé et des services sociaux de Trois-Rivières (university affiliated regional hospital centre, part of the Trois-Rivières health and social services centre)
CHU:	Centre hospitalier universitaire (university health centre)
CHUM:	Centre hospitalier de l'Université de Montréal (Université de Montréal health centre)
CHUSJ:	Centre hospitalier universitaire Sainte-Justine
CIHR:	Canadian Institutes of Health Research
CPASS:	Centre de pédagogie appliquée aux sciences de la santé (health sciences teaching centre)
CRCHUM:	Centre de recherche du Centre Hospitalier de l'Université de Montréal (CHUM research centre)
CRCHUSJ:	Centre de recherche du Centre hospitalier universitaire Ste-Justine (CHUST research centre)
CRFS:	Centre de recherche Fernand-Seguin
CRHMR:	Centre de recherche de l'Hôpital de Maisonneuve-Rosemont
CRHSC:	Centre de recherche de l'Hôpital du Sacré-Cœur de Montréal
CRIR:	Centre de recherche interdisciplinaire en réadaptation (Centre for Interdisciplinary Research in Rehabilitation)
CRME:	Centre de réadaptation Marie-Enfant (rehabilitation centre)
CSSS:	Centre de santé et de services sociaux (health and social services centre)
DCPP:	Direction collaboration et partenariat patient
FRQ-S:	Fonds de recherche du Québec-Santé (Québec's research funding agency-health)

GEPROM:	Groupe d'études des protéines membranaires (membrane proteins research group)
GRSNC:	Groupe de recherche sur le système nerveux central (central nervous system research group)
GRUM:	Groupe de recherche universitaire sur le médicament (university research group on pharmaceutical drugs)
HMR:	Hôpital Maisonneuve-Rosemont
HRDP:	Hôpital Rivière-des-Prairies
HSCM:	Hôpital du Sacré-Cœur de Montréal
IPPM:	Institut Philippe-Pinel de Montréal (forensic mental health institution)
IRCM:	Institut de recherches cliniques de Montréal (Montréal clinical research institute)
IRGLM:	Institut de réadaptation Gingras-Lindsay de Montréal (rehabilitation institute)
IRIC:	Institute for Research in Immunology and Cancer
IRICoR:	Institute for Research in Immunology and Cancer-Commercialization of Research
IUGM:	Institut universitaire de gériatrie de Montréal (Université de Montréal geriatric institute)
IUSMM:	Institut universitaire en santé mentale de Montréal (Université de Montréal mental health institute)
MHI:	Montreal Heart Institute
RUIS:	Réseau universitaire intégré en santé (integrated university health network)
SPOR:	Strategy for Patient-Oriented Research
QNDR:	Québec Network on Drug Research
UdeM:	Université de Montréal

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It is above all an institution that puts all its efforts into advancing research and teaching in the service of the community.

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