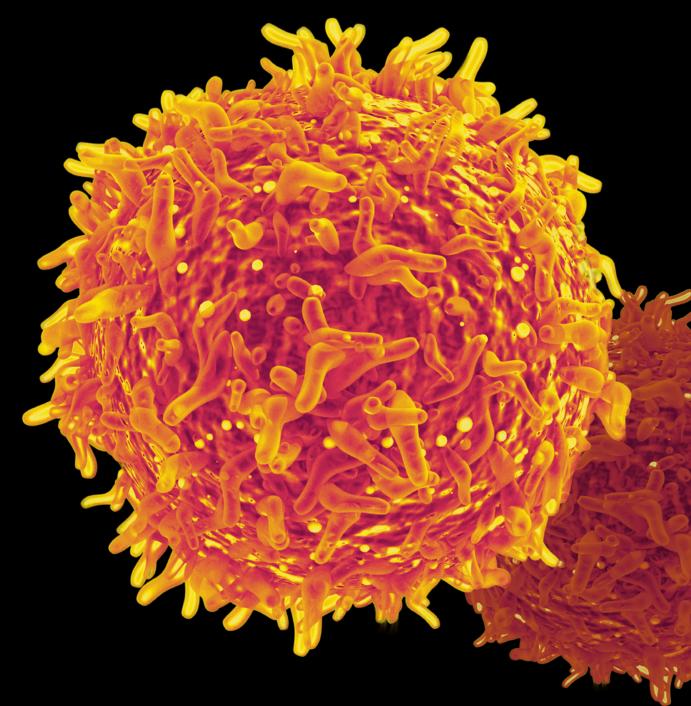


Multidisciplinary research training in life sciences



RC

Why study at IRIC?

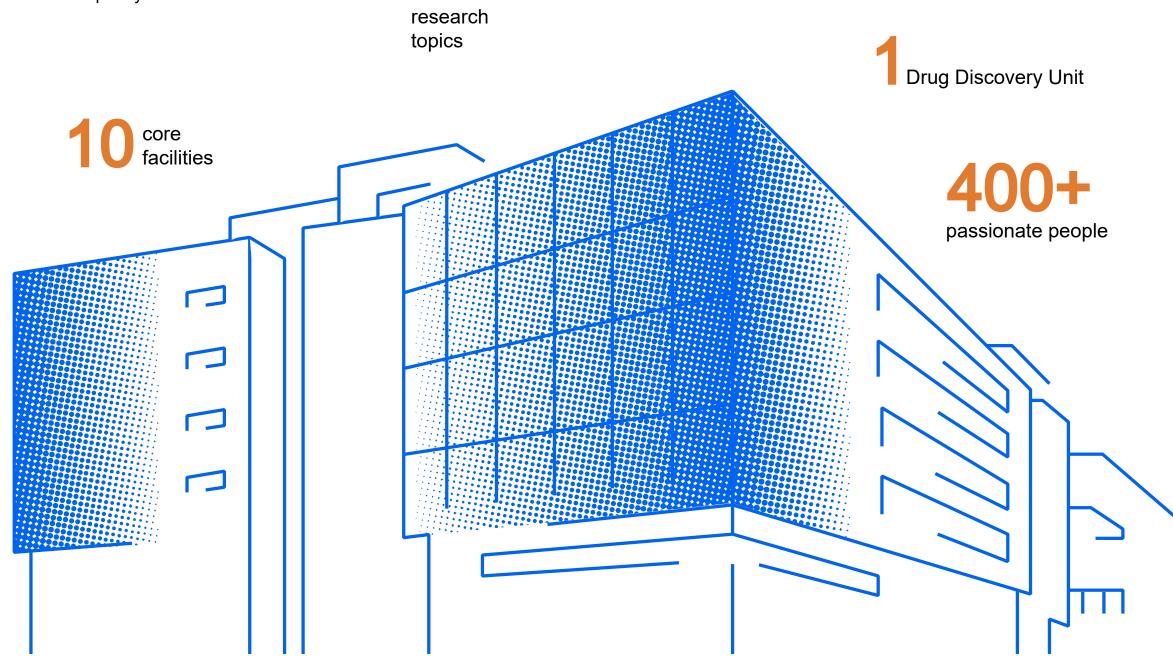
IRIC, located in the heart of the Université de Montréal campus, operates according to a unique model in Canada that combines, under one roof, fundamental research activities, a university-level training program and a research maturation team. These generate discoveries that advance knowledge and that could quickly translate into new therapeutic solutions.

5 150+ scientists in training research

Principal Investigators

Various study programs including 1 unique to IRIC

1000+ scientific publications





Principal Investigators



Vincent Archambault Cell Cycle Regulation



Delphine Bouilly Design and Application of Electronic Nanobiosensors



Michel Bouvier Molecular Pharmacology



Sébastien Carréno Cellular Mechanisms of Morphogenesis during Mitosis and Cell Motility



Carino Gurjao Medicine



Guy Sauvageau



Matthew Smith Cancer Signalling and



Marc Therrien Intracellular Signalling



François Major RNA Engineering



Chromatin Structure and Stem

Anne Marinier Drug Discovery

Julie Lessard

Cell Biology



Molecular Targeting in Breast

Sylvie Mader

Cancer Treatment

Sylvain Meloche Signalling and Cell Growth



Olivier Mailhot

Discovery

Computational Drug

Claude Perreault Immunobiology



Philippe P. Roux Cell Signalling and Proteomics



Geneviève Deblois Metabolic and Epigenetic Alterations in Cancer



Vesicular Trafficking and Cell Signalling



Etienne Gagnon Cancer Immunobiology



Genomic and Integrative



Molecular Genetics of Stem

Structural Biology





Pierre Thibault Proteomics and Mass Spectrometry



Trang Hoang Hematopoiesis and Leukemia



David Knapp Cellular Engineering



Jean-Claude Labbé Cell Division and Differentiation



Sébastien Lemieux Functional and Structural Bioinformatics



Vincent Q. Trinh Digital Histology and Advanced Pathology



Brian Wilhelm High-Throughput Genomics



Research topics



Targeted therapies and diagnosis

Transforming our understanding of the biological basis of cancer into concrete therapeutic and diagnostic solutions through the identification of new therapeutic targets, the design of innovative molecules, and the development of advanced diagnostic platforms. These efforts are based on multidisciplinary approaches, integrating medicinal chemistry, structural biology, proteomics and bioinformatics.

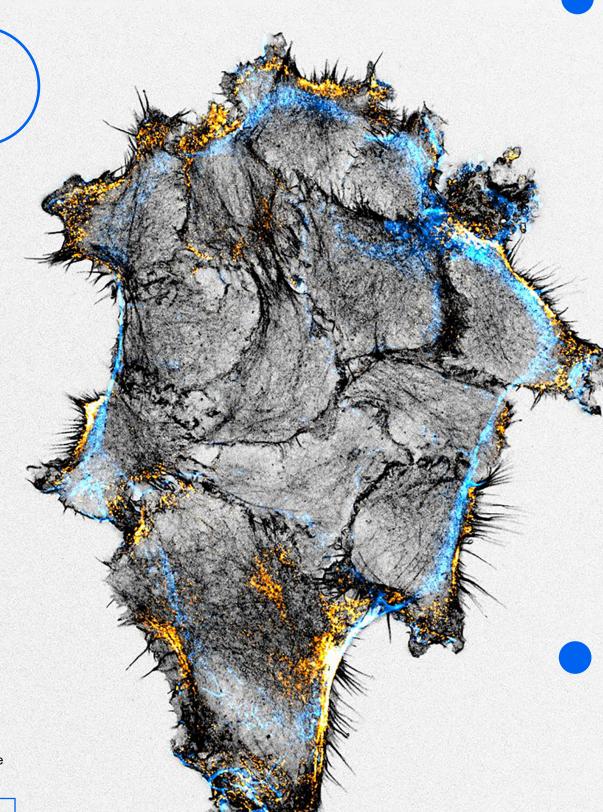
Bouilly, Bouvier, Deblois, Hoang, Lemieux, Lessard, Mader, Mailhot, Marinier, Meloche, Perreault, Roux, Sauvageau, Therrien, Thibault, Trinh, Wilhelm



Bioinformatics and artificial intelligence

Development and application of advanced computing technologies for the processing and analysis of massive data in biomedical research, including genomics, transcriptomics, proteomics, high-throughput screening and three-dimensional structure modeling.

Bouilly, Gurjao, Knapp, Labbé, Lemieux, Mader, Mailhot, Major, Marinier, Sauvageau, Trinh



Immunology and hematopoiesis

Study the development, differentiation and homeostasis of hematolymphoid cells, integrating advances in genomics, epigenomics and bioinformatics. Understanding abnormalities specific to hematological cancers. Understanding the role of the immune system in countering cancer.

Gagnon, Hoang, Knapp, Lessard, Perreault, Sauvageau, Roux, Thibault



Genomics and epigenetics

Understanding the molecular mechanisms underlying cancer initiation, progression and therapeutic response by combining genomics, epigenetics and genetic engineering.

Bouilly, Deblois, Gurjao, Knapp, Lemieux, Lessard, Mader, Major, Perreault, Roux, Sauvageau, Thibault

Signalling and cell biology

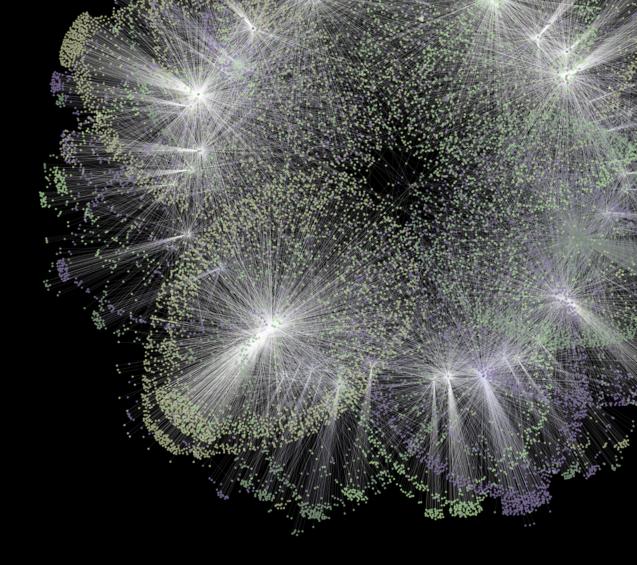
Elucidation of the fundamental mechanisms regulating intercellular communication and intracellular processes involved in cancer formation and progression. This work covers essential biological processes such as cell division, migration, cell polarity and the associated signalling mechanisms.

Archambault, Bouvier, Carréno, Deblois, Gagnon, Emery, Knapp, Labbé, Mader, Meloche, Roux, Smith, Therrien, Thibault



Accessing infrastructures on the cutting edge of biomedical research

IRIC is home to 10 core research facilities and 1 Drug Discovery Unit. By coming to IRIC, you will learn how to use the various technologies available and then apply them in the context of your project.



Drug Discovery Unit

Synthesis of original and specific small molecules leading to the discovery of chemical entities with therapeutic potential

Biophysics/NMR

Molecular structure and interaction analysis using nuclear magnetic resonance (NMR)

Genomics

Determining the genetic code and measuring gene expression

Bio-Imaging

State-of-the-art microscopy for research

ChemoGenix

Human genome-wide CRISPR/Cas9 screening with access to the largest repertoire of chemogenomic signatures

Histology

Preparation and observation of normal or tumor tissue in order to study their properties

Bioinformatics

Complex computer analysis of a large volume of data generated by research

High-throughput screening

Robotic systems that can measure the effect of hundreds of thousands of molecules

Proteomics

Identification and quantification of proteins based on their chemical composition

In vivo Biology

Study of biological mechanisms using rodent models

Flow Cytometry

Sort and analysis of cell physical and molecular characteristics



A multitude of study programs available

IRIC welcomes M.Sc. and Ph.D. students from various programs of Université de Montréal's Faculty of Arts and Sciences, of Medicine and of Pharmacy.

Degrees offered

1-year intensive M.Sc (Molecular Biology)

2-year traditional M.Sc.

5-year Ph.D.

Programs offered

Biomedical Engineering

Pharmaceutical Sciences

Biochemistry

Microbiology and Immunology

Pathology and Cell Biology

Pharmacology

Bioinformatics

Chemistry

Informatics

Molecular Biology

Physics

Competitive financial support

Yearly base scholarship*

\$CAN 25,289 M.Sc.

\$CAN 27,678 Ph.D.

* Amounts adjusted annually



Systems Biology, a program unique to IRIC

Master's in Research

With internships

1 year

Research project in two laboratories

In-lab rotations as part of two of the research teams (Fall and Winter semesters)

Theoretical and practical courses during the Summer School (Summer semester)

With thesis

2 years

Research project in one laboratory

Theoretical and practical courses during the Summer School (Summer semester)

Ph.D.

With thesis

5 years

Research project in one or two laboratories

Some theoretical courses crom the Summer School and others specific to the study program

In the age of genomics and proteomics, emerging technologies and new multidisciplinary approaches make it possible to address cancer as a whole and provide new hope for developing treatments for the disease. It was with a view to training the next generation of scientists for these new approaches that IRIC set up research training in systems biology, an option of the Molecular Biology program.

Summer School in Systems Biology

By its rich and dynamic programming, the Summer School will enable you to directly apply the concepts learned in class, develop your autonomy in the laboratory and become familiar with the equipment and scientific resources available.

Theoretical courses

Cellular and Molecular Biology of Cancer

Approaches in Systems Biology

Immuno-oncology: from the lab to the clinic

Practical in-laboratories courses

Practice in Molecular Biology

Bioinformatic Analysis

Functional Genomics

Biochemistry of Proteins

Personalized and integrated support unique at IRIC

The members of the Office of Academic Affairs are committed each day to supporting students in the development of their academic and professional path by ensuring personalized supervision. They also works on creating various activities allowing students to be open to career opportunities in life sciences.

Personalized support

Welcome days for new students

Follow-up meetings

Support in the preparation of applications for external scholarship competitions

Writing groups

Identification of pertinent resources

Student-student mentorship program

Academic and scientific activities

Professional and transversal skills / competences development workshops

"Academic" breakfasts

Networking event

Scientific days, symposiums, scientific conferences

Weekly presentations of the research work carried out by students and postdoctoral fellows



Student association

The IRIC Student Association (AÉIRIC) organizes various academic, scientific and social activities in order to allow students, postdoctoral fellows and other members of IRIC team to get to know each other better and contributes to generating cohesion and conviviality.

Academic and scientific activities

Integration nights for new students

Mental health awareness workshops

Scientific research popularizing events

"Tech-talks"

Social activities

Happy hours and BBQs

Pizza lunches

Bowling nights

Sugar shack outings

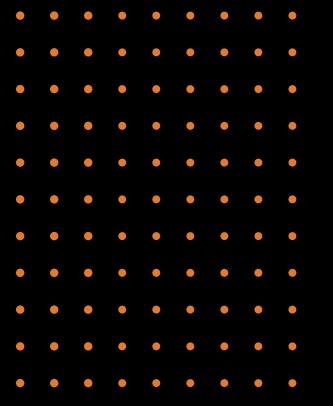
Halloween and Valentine's Day activities



Université **m**de Montréal et du monde.

In addition to the resources offered by the Institute, the Université de Montréal offers students and postdoctoral fellows privileged access to a wide range of services and activities that contribute to the enrichment of their student life.





STUDENT LIFE

Socio-economic resources

Financial Aid Office Scholarships Study-work programs

Welcome and integration

Welcome and support for new students
Off-campus housing
International Students Office
International House
Humanitarian and community action
Cultural activities
First Peoples Centre

Student Centre for Success Support

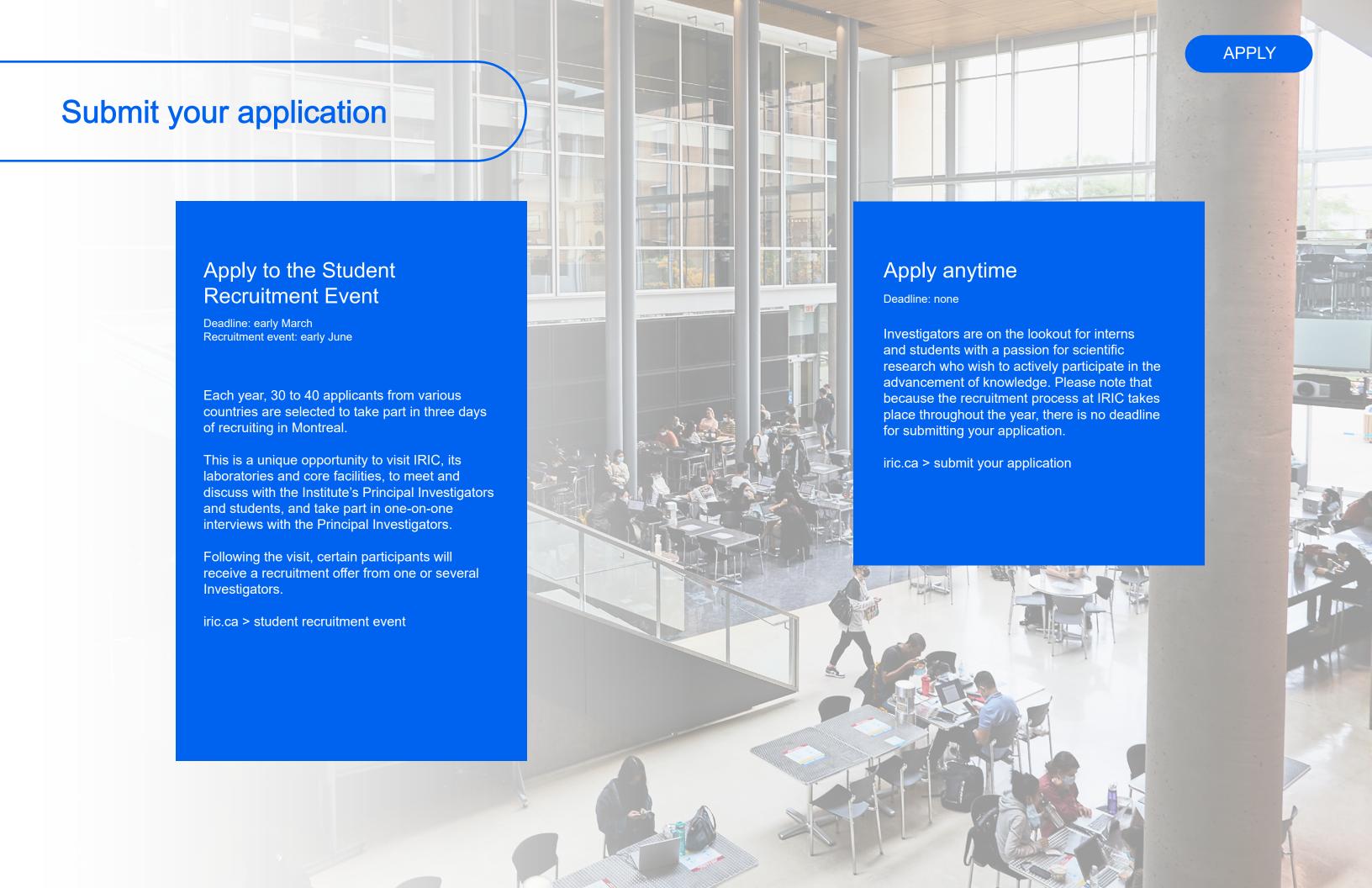
Written Communication Centre
Educational and professional information
Learning support
Faculty support
Career advice
Support for students with disabilities

Support for students with disabilities

Medical consultation
Nursing and vaccination
Psychological consultation
Nutrition
Physiotherapy
Laboratory analyses

Centre for Physical Education and Sports of the Université de Montréal (CEPSUM)

Sports Complex Kinesiology Clinic CHUM and UdeM Sports Medicine Clinic



INSTITUTE FOR RESEARCH IN IMMUNOLOGY AND CANCER



iric.ca/en

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