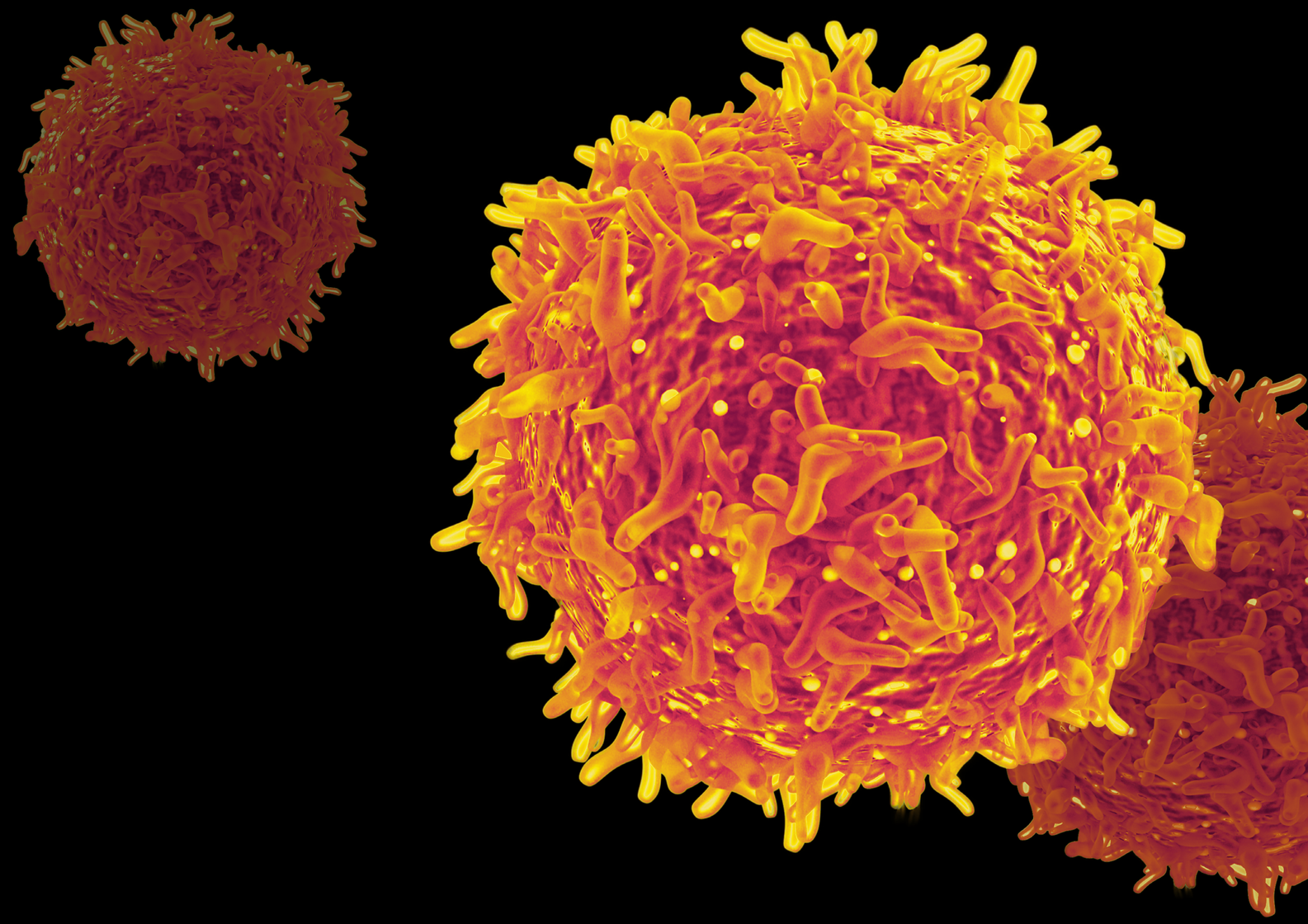
IRIC

Université de Montréal



Multidisciplinary
research training
in life **sciences**

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 research topics

150+ scientists in training

1 Drug Discovery Unit

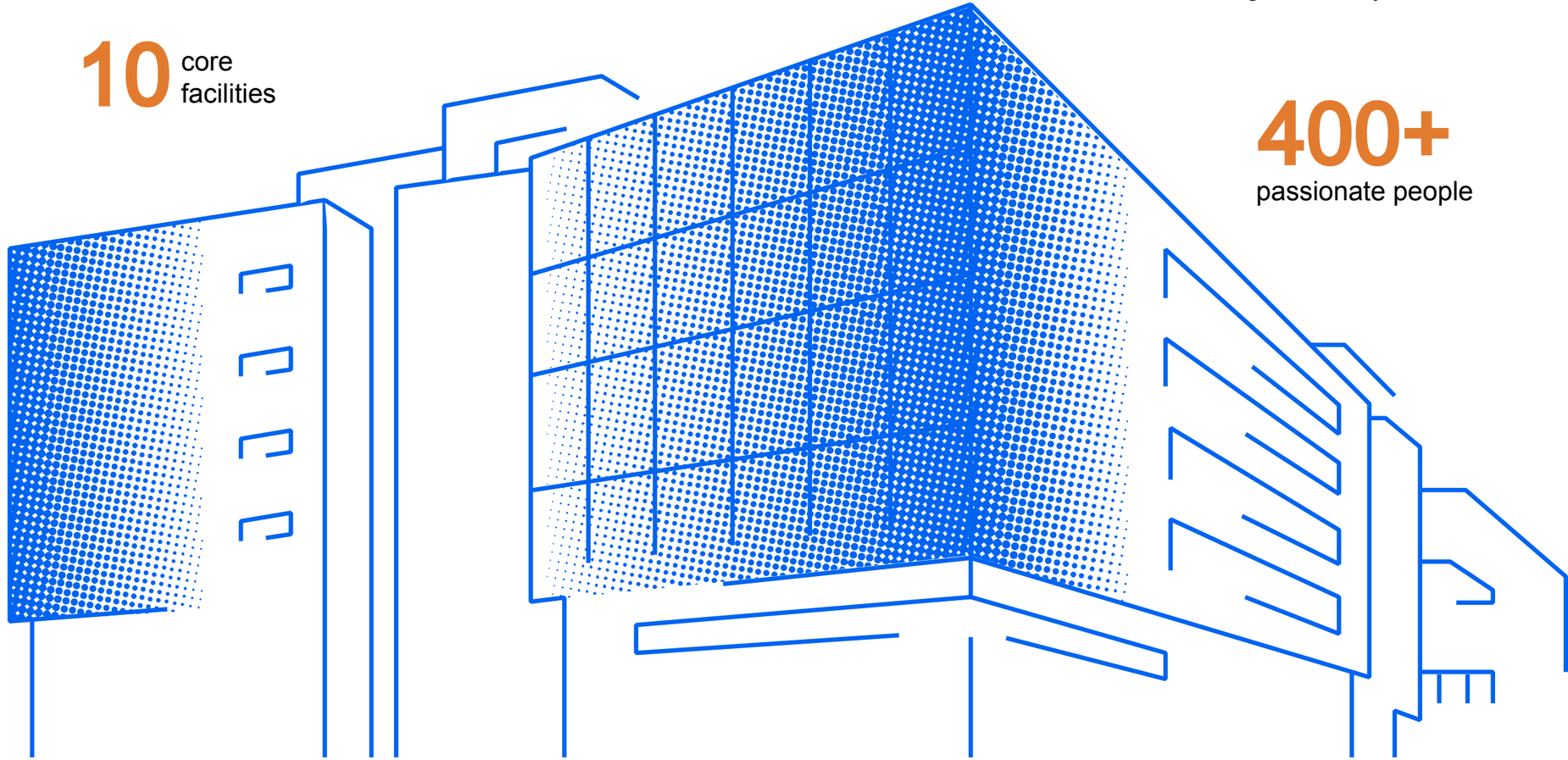
10 core facilities

400+ passionate people

29 Principal Investigators

1 Various study programs including 1 unique to IRIC

1000+ scientific publications



RESEARCH

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



David Knapp
Cellular Engineering



Jean-Claude Labbé
Cell Division and Differentiation



Sébastien Lemieux
Functional and Structural Bioinformatics



Julie Lessard
Chromatin Structure and Stem Cell Biology



Sylvie Mader
Molecular Targeting in Breast Cancer Treatment



Olivier Mailhot
Computational Drug Discovery



François Major
RNA Engineering



Anne Marinier
Drug Discovery



Geneviève Deblois
Metabolic and Epigenetic Alterations in Cancer



Gregory Emery
Vesicular Trafficking and Cell Signalling



Etienne Gagnon
Cancer Immunobiology



Marie-Anne Goyette
Tumor Heterogeneity and Metastasis



Sylvain Meloche
Signalling and Cell Growth



Claude Perreault
Immunobiology



Philippe P. Roux
Cell Signalling and Proteomics



Guy Sauvageau
Molecular Genetics of Stem Cells



Simon-Pierre Gravel
Cancer Metabolism and Signaling



Carino Gurjao
Genomic and Integrative Medicine



Trang Hoang
Hematopoiesis and Leukemia



Sebastian Igelmann
Aging Tumor Ecosystems



Matthew Smith
Cancer Signalling and Structural Biology



Marc Therrien
Intracellular Signalling



Pierre Thibault
Proteomics and Mass Spectrometry



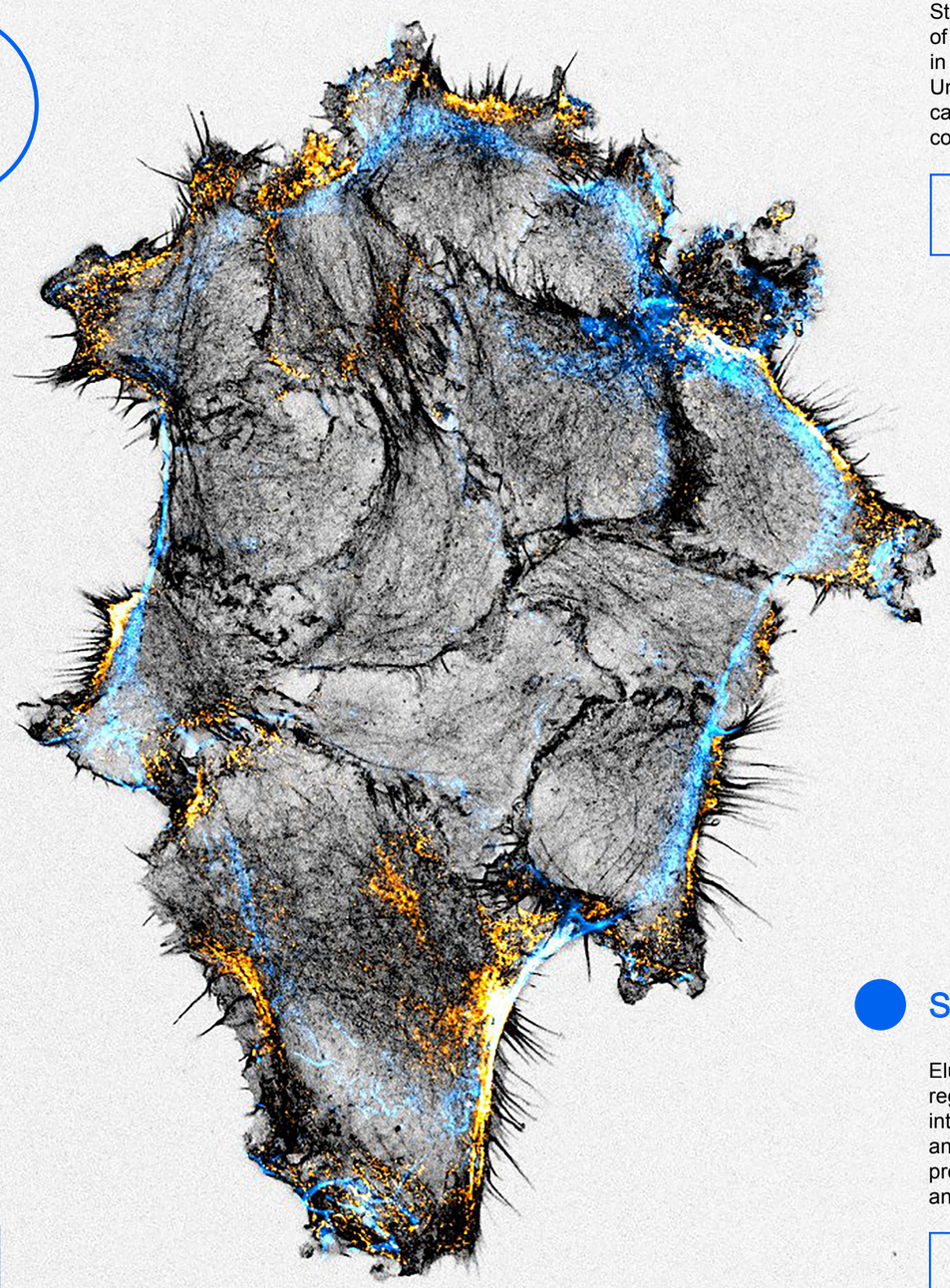
Vincent Q. Trinh
Digital Histology and Advanced Pathology



Brian Wilhelm
High-Throughput Genomics

RESEARCH

Research topics



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

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, Goyette, Hoang, Lemieux, Lessard, Mader, Mailhot, Marinier, Meloche, Perreault, Roux, Sauvageau, Therrien, Thibault, Trinh, Wilhelm

Genomics and epigenetics

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

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

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

Signalling and cell biology

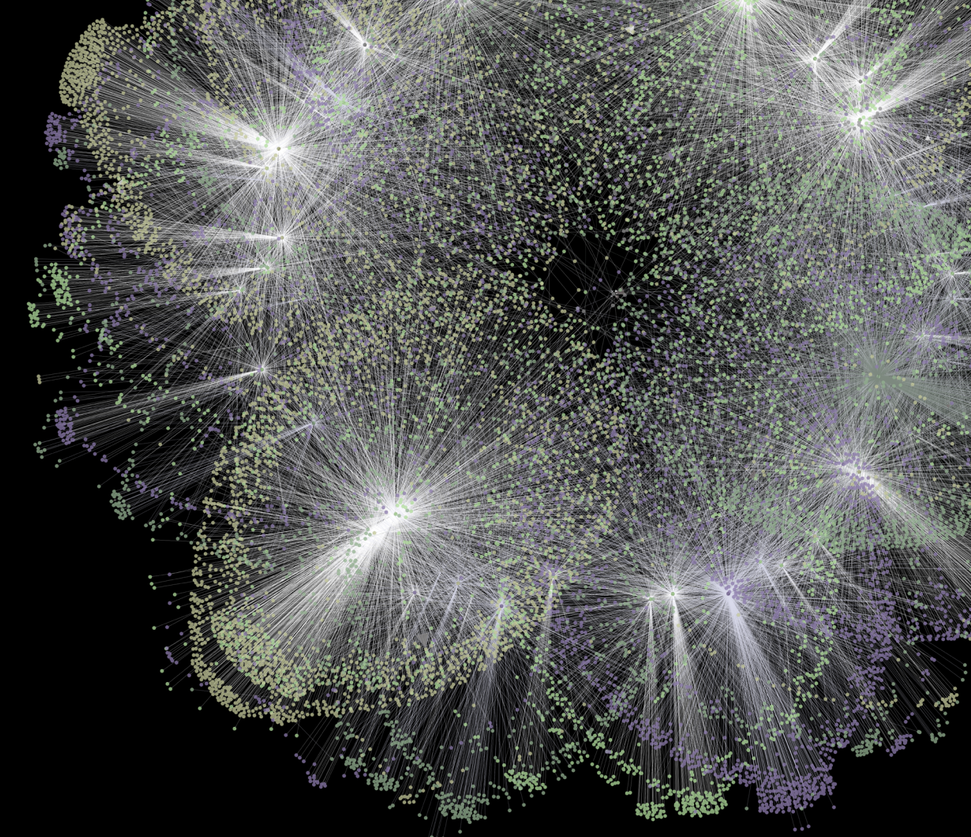
Elucidation of the fundamental mechanisms regulating intercellular communication and intracellular processes involved in cancer formation and progression. This work covers essential biological processes such as cell division, migration, cell polarity and the associated signalling mechanisms.

Archambault, Bouvier, Carréno, Deblois, Gagnon, Goyette, Gravel, Emery, Knapp, Labbé, Mader, Meloche, Roux, Smith,

RESEARCH

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

Bio-Imaging

State-of-the-art microscopy for research

Bioinformatics

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

Biophysics/NMR

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

ChemoGenix

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

High-throughput screening

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

In vivo Biology

Study of biological mechanisms using rodent models

Genomics

Determining the genetic code and measuring gene expression

Histology

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

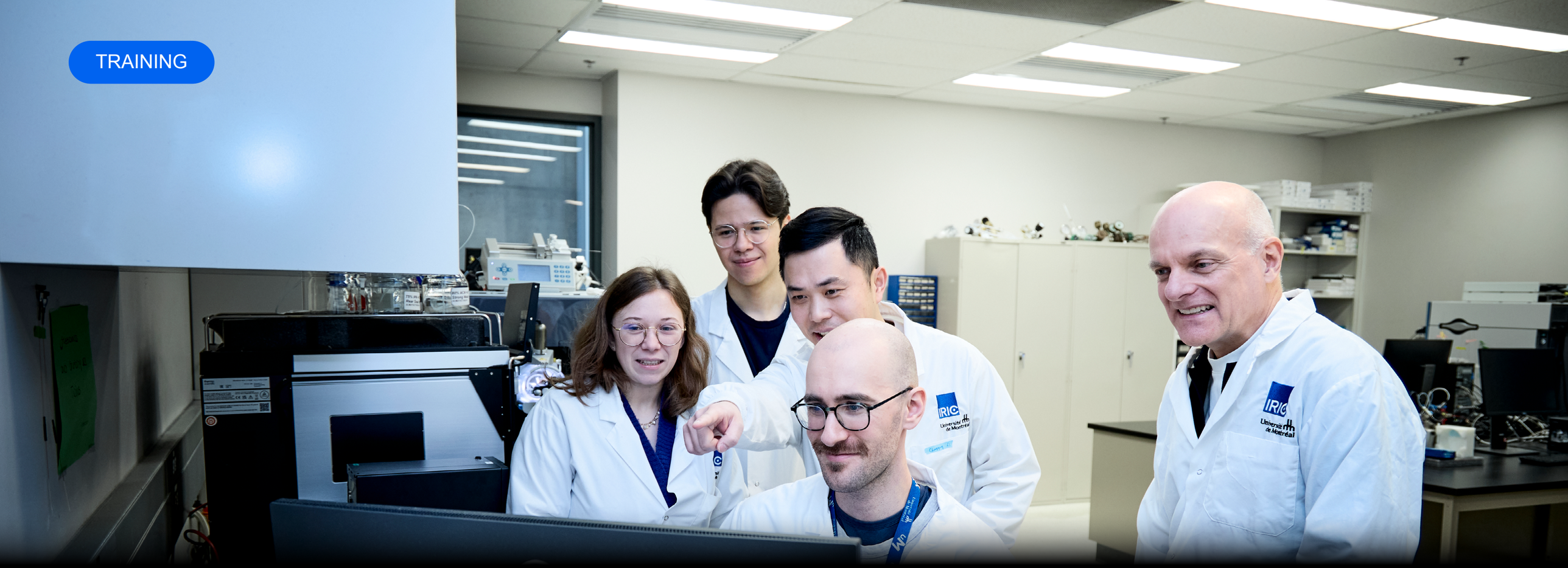
Proteomics

Identification and quantification of proteins based on their chemical composition

Flow Cytometry

Sort and analysis of cell physical and molecular characteristics

TRAINING



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
- Biochemistry
- Bioinformatics
- Chemistry
- Informatics
- Microbiology and Immunology
- Molecular Biology
- Pathology and Cell Biology
- Pharmaceutical Sciences
- Pharmacology
- Physics

Competitive financial support

Yearly base scholarship*

- $CAN 26,100 M.Sc.
- $CAN 28,570 Ph.D.

* Amounts adjusted annually

TRAINING

Systems Biology, a program unique to IRIC

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.

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

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 de Montréal

The University of Montreal
and of the world.

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

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

Socio-economic resources

Financial Aid Office
Scholarships
Study-work programs

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

APPLY

Submit your application

Apply to the Student Recruitment Event

Deadline: early March
Recruitment event: early June

Each year, 30 to 40 applicants from various countries are selected to take part in three days of recruiting in Montreal.

This is a unique opportunity to visit IRIC, its laboratories and core facilities, to meet and discuss with the Institute's Principal Investigators and students, and take part in one-on-one interviews with the Principal Investigators.

Following the visit, certain participants will receive a recruitment offer from one or several Investigators.

iric.ca > student recruitment event

Apply anytime

Deadline: none

Investigators are on the lookout for interns and students with a passion for scientific research who wish to actively participate in the advancement of knowledge. Please note that because the recruitment process at IRIC takes place throughout the year, there is no deadline for submitting your application.

iric.ca > submit your application

INSTITUTE FOR RESEARCH
IN IMMUNOLOGY
AND CANCER

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