Multidisciplinary training
in cancer research
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.

- 1 Drug Discovery Unit
- 150+ Students
- 29 Principal Investigators
- 1 Various study programs including one unique to IRIC
- 10 Core Facilities
- 1000+ Scientific publications
- 7 Research topics
- 500 Passionate people
Acquiring new knowledge and accelerating the discovery of new therapies

At IRIC, each lab has a primary research topic that is reflected in the name of its unit.

Collaboration and collegiality are favoured and as a result, the Institute's teams develop common projects leading to new solutions or paths of reflection involving cancer research.
Principal Investigators

IRIC is home to 29 research units led by investigators who are fully committed to training a new generation of scientists. Through their experience and expertise, they provide quality academic and scientific mentoring that fosters learning and drives students to surpass themselves.
Research topics

Targeted Therapies & Diagnostics

- Borden, Gagnon, Hoang, Knapp, Lessard, Perreault, Sauvageau, Roux, Wilhelm
- Archambault, Borden, Bouilly, Bouvier, Keck, Marinier, Smith, Therrien, Thibault, Tyers
- Bouilly, Bouvier, Gagnon, Emery, Kowck, Mader, Meloche, Roux, Smith, Therrien, Thibault
- Bouilly, Bouvier, Gaboury, Knapp, Lemieux, Mader, Major, Marinier, Tyers, Wilhelm

Cell Signaling & Protein Dynamics
Study of how cells perceive and interpret stimuli from their environment and how these signals modify gene expression and the activity of the cell’s regulatory proteins.

- Bouvier, Camino, Deblais, Gagnon, Emery, Kowck, Mader, Meloche, Roux, Smith, Therrien, Thibault

Computational Analysis & Modeling
Development of informatics tools for the analysis and interpretation of large biological datasets including genomics, proteomics and structural biology data. Modeling of complex biological systems.

- Bouilly, Bouvier, Gaboury, Knapp, Labbé, Lemieux, Mader, Major, Marinier, Tyers, Wilhelm

Immunology & Hematopoiesis
Understanding the protective role of the immune system against cancers and development of immuno-therapeutic approaches. Characterization of the blood stem cells and their derivatives and study of the genesis of hematological cancers.

- Borden, Gagnon, Hoang, Knapp, Lessard, Perreault, Sauvageau, Roux, Wilhelm

Chemical & Structural Biology
Application of chemical analysis techniques to study and manipulate biological systems. Determination of the structure of biological macromolecules and understanding of how alterations of these structures affect their functions.

- Archambault, Borden, Bouilly, Bouvier, Keck, Marinier, Smith, Therrien, Thibault, Tyers

Genomics & Epigenetics
Study of how cells perceive and interpret stimuli from their environment and how these signals modify gene expression and the activity of the cell’s regulatory proteins.

- Deblais, Harrington, Knapp, Lemieux, Lessard, Mader, Major, Sauvageau, Verreault, Wilhelm

Cell Division & Migration
Identification of the details of the mechanics and regulatory processes of the cell cycle, division and movement of normal and cancer cells.

- Archambault, Caminé, Emery, Kowck, Labbé, Meloche, Roux, Tyers
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.

<table>
<thead>
<tr>
<th>Research</th>
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<tbody>
<tr>
<td><strong>Drug Discovery Unit</strong></td>
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<tr>
<td>Synthesis of original and specific small molecules leading to the discovery of chemical entities with therapeutic potential</td>
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<td><strong>Histology</strong></td>
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<td>Preparation and observation of normal or tumor tissue in order to study their properties</td>
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<td><strong>Flow Cytometry</strong></td>
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<td>Sort and analysis of cell physical and molecular characteristics</td>
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<td><strong>High-throughput screening</strong></td>
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<td>Robotic systems that can measure the effect of hundreds of thousands of molecules</td>
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<td><strong>Bioinformatics</strong></td>
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<td>Complex computer analysis of a large volume of data generated by research</td>
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<td><strong>In Vivo Biology</strong></td>
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<td>Study of biological mechanisms using rodent models</td>
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<td><strong>Proteomics</strong></td>
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<td>Identification and quantification of proteins based on their chemical composition</td>
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<tr>
<td><strong>Genomics</strong></td>
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<td>Determining the genetic code and measuring gene expression</td>
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<td><strong>Cytogenetics</strong></td>
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<tr>
<td>Chromosomal structure analysis of normal cells and cancer cells</td>
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<td><strong>Biophysics/NMR</strong></td>
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<tr>
<td>Molecular structure and interaction analysis using nuclear magnetic resonance (NMR)</td>
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<td><strong>Bio-Imaging</strong></td>
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<td>State-of-the-art microscopy for research</td>
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IRIC actively participates in training the next generation of scientists.

To study at IRIC is to gain access to unique and personalized guidance, a team of experts in fundamental, translational and applied research, as well as state-of-the-art infrastructures that make it possible to optimize cancer research efforts.
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.

- 1-year intensive M.Sc. (Molecular Biology)
- 2-year traditional M.Sc.
- 5-year Ph.D.

Programs offered

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<thead>
<tr>
<th>Bioinformatics</th>
<th>Biomedical Engineering</th>
<th>Pharmacology</th>
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<tr>
<td>Biochemistry</td>
<td>Informatics</td>
<td>Physics</td>
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<tr>
<td>Molecular Biology</td>
<td>Microbiology and Immunology</td>
<td>Pharmaceutical Sciences</td>
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<tr>
<td>Chemistry</td>
<td>Pathology and Cell Biology</td>
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Competitive financial support

Yearly base scholarship for all enrolled students.

- $21,350 M.Sc.
- $23,375 Ph.D.
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)

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
Molecular Genetics of Eukaryotes
Approaches in Systems Biology
Immuono-cology: from the lab to the clinic

Practical in-laboratories courses

Practice in Molecular Biology
Genetic Models of Cancer
Bioinformatic Analysis
Functional Genomics
Biochemistry of Proteins

Ph.D.

With thesis

5 years

Research project in one or two laboratories

Some theoretical courses from the Summer School and others specific to the study program
Personalized and integrated support unique at IRIC

The members of the Office of Academic Affairs is committed each day to supporting students in the development of their academic and professional path by ensuring personalized supervision. It 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 events
- Scientific days, symposiums, scientific conferences
- Weekly presentations of the research work carried out by students and postdoctoral fellows
Student association

The IRIC Student Association (AEIRIC) 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.

Social activities

- Happy hours and BBQs
- Pizza lunch
- Bowling nights
- Sugar shack outings
- Halloween parties

Academic and scientific activities

- Integration nights for new students
- Mental health awareness workshops
- Scientific research popularizing events
- "Tech-talks"

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

Support for students with disabilities

- Health and Psychological Consultation Centre
- Medical consultation
- Nursing and vaccination
- Psychological consultation
- Nutrition
- Physiotherapy
- Laboratory analyses

Centre for Physical Education and Sports of the University of Montreal

- Sports Complex
- Kinesiology Clinic
- CHUM and UdeM Sports Medicine Clinic

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.
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