IRICoR

COMMERCIALIZATION OF RESEARCH
Institute for Research in Immunology and Cancer

AN INNOVATIVE APPROACH TO DRUG DISCOVERY

INSTITUTE FOR RESEARCH
IN IMMUNOLOGY
AND CANCER

IRIC

Université de Montréal


SORTIE
SORTIE

THE INSTITUTE FOR RESEARCH IN IMMUNOLOGY AND CANCER— COMMERCIALIZATION OF RESEARCH

IRICoR The Institute for Research in Immunology and Cancer — Commercialization of Research (IRICoR) is a not-for-profit drug discovery and commercialization centre based at the Institute for Research in Immunology and Cancer (IRIC) of the *Université de Montréal* (UdeM). In 2008, the shared vision of IRIC's scientists and the UdeM administration led to the creation of IRICoR. The Center was awarded an initial funding of $15M by the Government of Canada as a Centre of Excellence for Commercialization and Research (CECR).

IRICoR's main objective is to rapidly translate highly innovative scientific projects from IRIC, UdeM, and collaborating centres into high value novel therapies in oncology, immunology and related indications through strong partnerships with the private sector — thereby efficiently bridging the innovation translation gap between early-stage academic research and industry.

IRICoR IS A FULLY-INTEGRATED DRUG DISCOVERY AND COMMERCIALIZATION CENTRE UNDER A SINGLE ROOF, WITH ONE OF THE LARGEST INDUSTRY-EXPERIENCED ACADEMIA-BASED MEDICINAL CHEMISTRY GROUPS IN CANADA.

"UdeM is strongly committed to supporting IRIC/IRICoR, our unique asset in drug discovery and commercialization"

Dr Guy Breton, Rector, UdeM

VISION

To capture and maximize the value of cutting edge research through translation of innovative academic discoveries into new therapies.

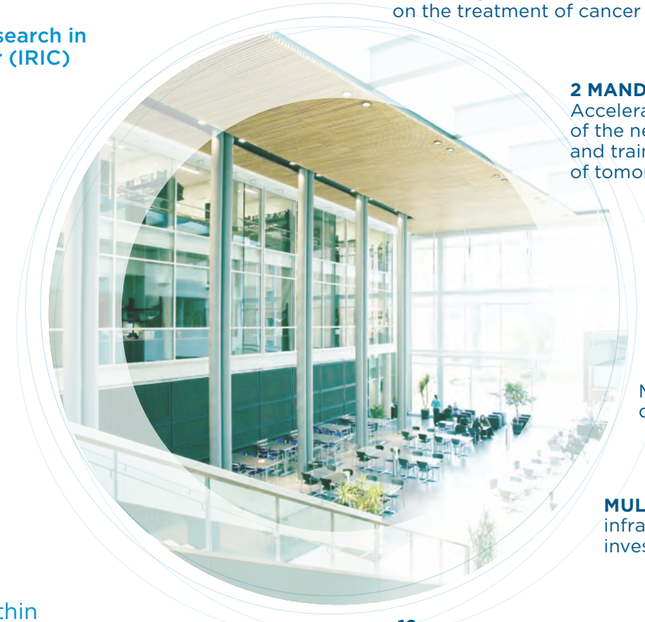
MISSION

To accelerate the discovery and commercialization of novel highly innovative therapies in oncology and related indications by establishing strong partnerships with industry.

IRICoR IS EMBEDDED IN A WORLD-RENOWNED RESEARCH INSTITUTE FOCUSED ON THERAPEUTIC INNOVATION

The Institute for Research in Immunology and Cancer (IRIC)

IRIC is an ultra-modern research hub and training centre located at the heart of UdeM which was founded in 2003 to shed light on the mechanisms of cancer and to discover new, more effective targeted therapies to counter this plague.



1 MISSION
Have a significant impact on the treatment of cancer

2 MANDATES
Accelerate the discovery of the new therapies and train the scientists of tomorrow

More than **25** research teams

More than **400** dedicated employees

MULTIMILLION $
infrastructure investments

12
state-of-the-art technological platforms

"IRIC and IRICoR have successfully combined their complementary expertises to create a cultural change within academia."

Dr Marc Therrien, Scientific Director, IRIC

Strategy

IRICoR's strategy focuses on leveraging the Centre's deep scientific and business knowledge in oncology and related fields to select and invest in highly innovative projects thus filling the Innovation Translation Gap and accelerating the commercialization of cutting-edge products.

Objectives

+ To translate the most promising drug discovery projects into accessible drugs in oncology, immunology and related indications

+ To efficiently capture the high value of our projects in order to sustain our upstream pipeline of innovation

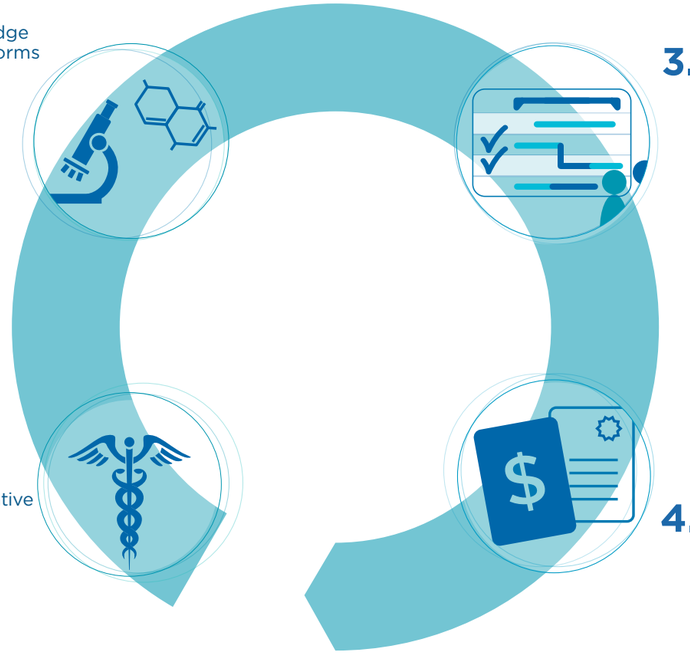
+ To accelerate the commercialization of innovative therapies through strategic and financial partnerships

Business model

IRICoR has a flexible business model adapted to the needs of both the academic and the private sectors that aims at de-risking the discovery and commercialization of proprietary paradigm-shifting therapeutic approaches in oncology, immunology and related indications. IRICoR's model is based on **four (4) main pillars**:

2. In-house cutting-edge technologies, platforms and affiliated clinical facilities

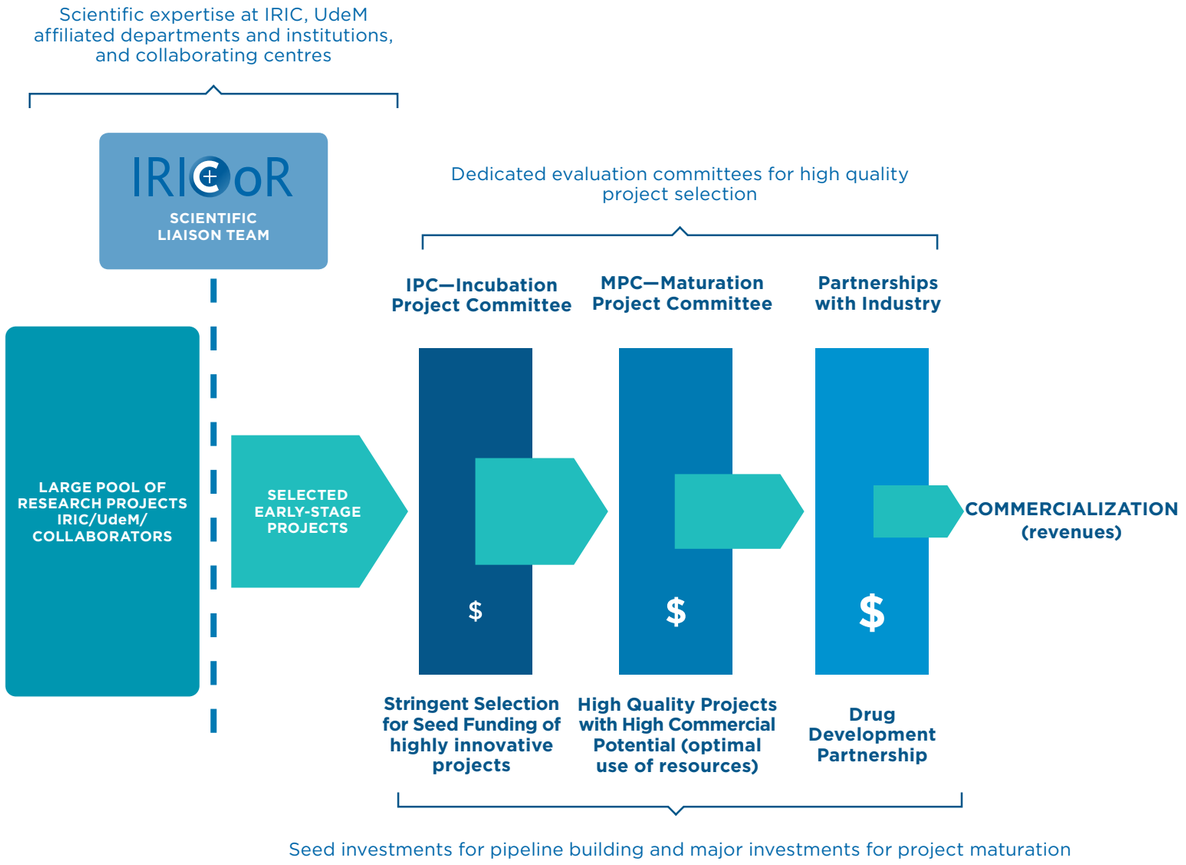
3. Financial and professional support to the selected projects



1. Investment in innovative commercialization-focused projects

4. Identification and establishment of targeted partnerships towards most valuable commercialization

1. Investment in innovative commercialization-focused projects



INCUBATION PROJECT COMMITTEE (IPC)

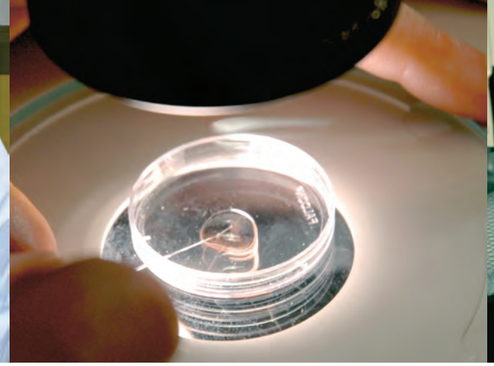
- IRIC internal evaluation committee
- Investment level: $25K-$50K/project/year
- Stage: from Target Identification to early Hit-to-Lead
- Type: High risk/High impact projects

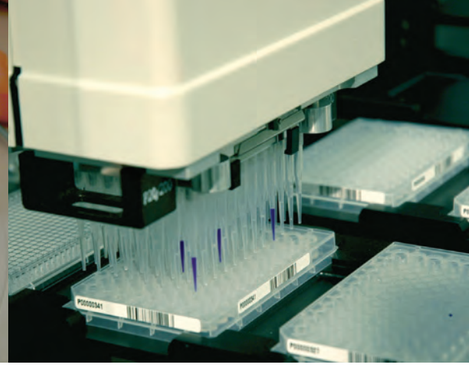
MATURATION PROJECT COMMITTEE (MPC)

- External evaluation committee
- Investment level: $100K-$500K/project/year
- Stage: from Lead Identification to pre-clinical/ early clinical trials
- Type: High impact/High commercial potential projects

2. In-house cutting-edge technologies, platforms and affiliated clinical facilities

All platforms are managed by scientists with industry expertise who ensure professional supervision and continuous development of the technology platforms through partnerships with selected providers and key internal technology developers.





High-Throughput Screening
Histology
Flow Cytometry
Genomics

Proteomics
Bio-imaging
Bioinformatics
Recombinant Proteins and Antibodies

Medicinal

Chemistry

Transgenesis
Animal Facility

TARGET IDENTIFICATION	TARGET VALIDATION	HIT IDENTIFICATION	HIT-TO-LEAD	LEAD OPTIMIZATION	PRE-CLINICAL STUDIES	CLINICAL STUDIES + DEVELOPMENT
		High-Throughput Screening	Biophysics	Biopharmacy		Affiliated Hospital Centres

- **Bio-imaging:** Microscopic image acquisition and analysis
- **Bioinformatics:** Development of novel tools to analyze, integrate and view complex biological data sets
- **Biophysics:** Characterization of molecule structures, nuclear magnetic resonance and study of protein interactions with other molecules or drugs
- **Chemical Systems Biology:** The platform will comprise design, theoretical and experimental target analysis, High Throughput (HTP) diversified chemical synthesis and ultraHTP screening methods
- **Flow Cytometry:** Analysis and isolation of cells present in heterogeneous samples, according to their physical or functional and pharmaceutical properties
- **Genomics:** Large-scale DNA sequencing, genotyping and gene expression quantification
- **High-Throughput Screening (Chemical and Phenotypic):** Identification and validation of new molecular targets and small molecules with therapeutic potential
- **Histology:** Study and analysis of the morphological and functional changes of tissue distribution of targets, and design and use of tissue microarrays
- **Medicinal Chemistry:** Synthesis of new molecules with biological activity and optimization of their therapeutic and pharmaceutical properties
- **Proteomics:** Characterization of complex protein samples analysis of protein-protein interactions and their post-translational modifications
- **Recombinant Proteins and Antibodies:** Large-scale production of proteins and specific antibodies
- **Transgenesis and Animal Facility:** Production of genetically modified mice and development of/homing to various animal models

THE CHEMICAL SYSTEMS BIOLOGY PLATFORM WAS AWARDED A $10.5M CANADIAN FOUNDATION FOR INNOVATION GRANT TO EXPLICITLY PROBE THE CHEMICAL SPACE FOR ANY TARGET AT LOW COST, AND THEREBY ACCELERATE THE SYSTEMATIC IDENTIFICATION OF SMALL MOLECULE MODULATORS OF GENE NETWORK FUNCTION IN HEALTH AND DISEASE.

3. Financial and professional support to the selected projects

IRICoR's value-added process is based on identification, support and management of high-potential projects with a clear path towards commercialization. This process is advantageously complemented by dedicated intellectual property (IP) building activities.

PROJECT IDENTIFICATION, SUPPORT & MANAGEMENT + **INTELLECTUAL PROPERTY (IP) BUILDING**

- Dedicated industry-experienced Project Managers
- Milestone-based project management
- Professionnal Drug Discovery support
- Cutting-edge Technologies and Platforms

Novel and innovative targets/compounds

New Mechanisms of Action

Clear Drug Discovery & Development path

Disruptive Technologies

Multidisciplinary Expertise

Unmet medical need

- Patent portfolio management
- Business-led IP strategy
- Constant IP landscape survey
- IP monetization scenarios

NEW IP PORTFOLIO

LICENSING OPPORTUNITIES

IRICoR develops IP strategies aimed at generating high quality IP assets with a clear path towards clinical development and market potential. This includes proprietary compounds identified by proprietary enabling tools as well as animal models for the establishment of pre-clinical proof of concept.

IP protection is mainly done through patenting but unregistered assets such as know-how linked to methods and cell/in vivo models are valued as well for an additional competitive edge.

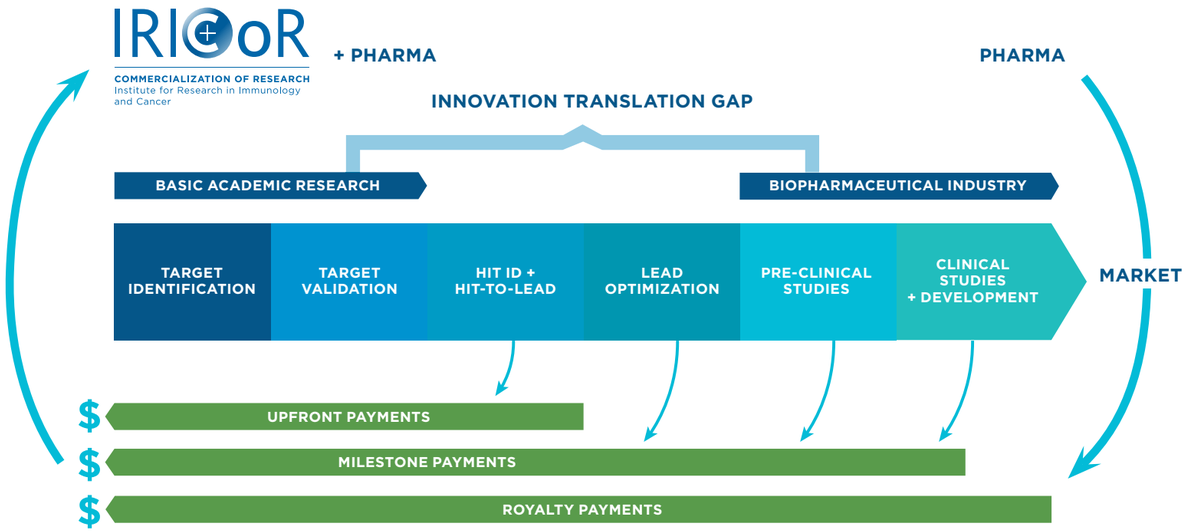
IRICoR'S STAGED APPROACH TOWARDS NEWLY DEVELOPED IP PROTECTION:

- Step 1: meeting patentability sound prediction and enablement requirements for new inventions while applying cost filing strategies
- Step 2 (after validation of initial IP): ensuring enough coverage to account for internal commercialization goals and foreseeable adjustments by competitors
- Step 3: exploring various licensing opportunities including a license for the pre-clinical/clinical development of a project to a strategic partner or the possibility to license part of IP (e.g. enabling technologies) to non-competing industries and create alternate revenue streams.

IRICoR has the flexibility to continue prosecution of UdeM Background IP alone or with industry partners if there is mutual interest, thus keeping the possibility to maintain its position and be able to strategically grant non-exclusive licenses on the matter.

4. Identification and Establishment of targeted partnerships towards most valuable commercialization

In order to crystallize the commercialization potential of its project portfolio, IRICoR devises exit strategies for each project to maximize its return on investment.



+ IRICoR seeks partnerships for discovery projects at various pre-IND stages although its preference is to partner towards the end of lead optimization/early pre-clinical studies, one of the early value-creating inflexion points, where strong medicinal chemistry and biology expertise come into play and where IRICoR can potentially get optimal value for its portfolio projects through strategic partnerships or spin-off company creation.

IRICoR'S KEY SUCCESS FACTORS

- Embedded in a world-renowned research institute with key opinion leaders as principal investigators
- One of the largest industry-experienced academia-based medicinal groups in Canada
- Creation of a cultural change in academia
- Investing in selected high quality projects
- Providing industry-standard professional project management
- Implementation of proactive project marketing
- Establishing strong partnerships with private sector at key development value inflexion points

INSTITUTE FOR RESEARCH IN IMMUNOLOGY AND CANCER | IRIC

Université de Montréal
P.O. Box 6128, station Centre-ville,
Montréal, Québec, H3C 3J7,
CANADA

Address on the Université de Montréal campus:
Marcelle-Coutu Pavilion,
2950, chemin de Polytechnique,
Montréal
514 343.7770

www.iric.ca