CCSRI Innovation Grant Program
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Innovation Grants

Purpose

• to support innovative, creative problem solving in cancer research

• to support unconventional concepts, approaches or methodologies to address problems in cancer research

• based on “high risk” ideas, but will have the potential for “high reward”

• to significantly impact our understanding of cancer and generate new approaches to combat the disease by introducing novel ideas into use or practice
Innovation Grants

Scientific focus

- primarily designed to support the biomedical, translational and clinical research communities, applications from all areas and disciplines of cancer research will be considered eligible for funding and will be evaluated based on a common set of criteria

Funding

- budget up to $100k per year, to a max of $200k (over 3 years)
- 2 competition per year
- up to 25 grants per competition
- eligible expenses: direct costs of research, including supplies, expenses, wages and equipment associated with the proposed work. Equipment up to 25% of the requested budget. Indirect costs are \textit{not} eligible expenses

Peer review

Two stage application process:
- abstract registration required to compose review panels
- multidisciplinary peer review committees will consist of scientific experts with broad expertise, along with community representatives to provide patient/survivor/caregiver perspectives
Review criteria

- five assessment categories: Innovation, Research Strategy, Investigator(s), Environment, and Cancer Relevance
- applications will be assigned an overall score, based on the above categories, as well as a separate innovation score, innovation will be heavily weighted in the overall score
- significant emphasis will be placed on the innovation statement, which should describe how the project is innovative and not focus on significance or feasibility

Innovation
- potential to address an important problem or a critical barrier to progress in the field
- potential to improve or apply a new theoretical concept, approach, methodology or tool
- degree to which the research is original, unique and creative
- potential gain relative to (any) perceived risk
- degree to which the research proposes new paradigms or challenges existing ones

Research strategy
- scientific merit and convincing rationale that considers critical review and analysis of preliminary data and/or published literature, as appropriate
- identification of potential problems and how they will be addressed, including alternative approaches
- appropriateness of the term and amount of support requested

Investigator(s)
- qualifications and appropriate expertise of the investigator(s)

Environment
- quality of the research environment in which the work will take place

Cancer relevance
- potential impact on cancer control
- degree to which the proposed research addresses the Society’s strategic priorities to reduce cancer incidence, reduce cancer mortality, and improve the quality of life for Canadians living with and beyond cancer
<table>
<thead>
<tr>
<th>Score</th>
<th>Levels of Innovation/Characteristics</th>
<th>Priority for Funding</th>
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<tbody>
<tr>
<td>4.2-5.0</td>
<td><strong>Transformational</strong> (at least one of following):</td>
<td>High</td>
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<td></td>
<td>• Transformative, paradigm-shifting research seeking to alter current research or clinical practice approaches</td>
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<td>• High potential to address an important problem or a critical barrier to progress in the field</td>
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<td></td>
<td>• Utilization of novel theoretical concepts, approaches or methodologies, instrumentation, or interventions that may be exploited or adopted by several fields of research</td>
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<td></td>
<td>• Application of novel theoretical concepts, approaches or methodologies, instrumentation, or interventions (in ways not been previously proposed)</td>
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<td></td>
<td>• Unique application of existing concepts, approaches or methodologies, instrumentation, or interventions (in ways not been previously proposed)</td>
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<td>3.4-4.1</td>
<td><strong>Substantial</strong> (at least one of following):</td>
<td>Medium</td>
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<td></td>
<td>• Research is unique and creative</td>
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<td>• Moderate potential to address an important problem or a critical barrier to progress in the field</td>
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<td></td>
<td>• Utilization of novel theoretical concepts, approaches or methodologies, instrumentation, or interventions that may be exploited or adopted by a field of research</td>
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<tr>
<td></td>
<td>• Improvement of existing theoretical concepts, approaches or methodologies, instrumentation, or interventions</td>
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## Innovation Scale

<table>
<thead>
<tr>
<th>Score</th>
<th>Levels of Innovation/Characteristics</th>
<th>Priority for Funding</th>
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<tbody>
<tr>
<td>3.0-3.3</td>
<td><strong>Incremental</strong> (at least one of the following):</td>
<td>Low</td>
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<td></td>
<td>• Low potential to address an important problem or a critical barrier to progress in the field</td>
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<td></td>
<td>• Refinement of existing theoretical concepts, approaches or methodologies, instrumentation, or interventions</td>
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<tr>
<td>Below 3.0</td>
<td>• Research project is not considered innovative as it represents the next logical step or continuation of a previous project and an incremental advance upon published data and/or existing knowledge. The proposal is need of further development before being competitive</td>
<td>None</td>
</tr>
<tr>
<td>Unscored</td>
<td>• The application was triaged by the panel and not discussed. The weaknesses of the proposed research far outweigh the strengths and therefore there is low expectation of success.</td>
<td>None</td>
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Panels composed based on content of Abstract Registration applications

- **current Innovation competitions:** 6 panels
  - Panel I1a – Biomarkers and Genomics
  - Panel I1b – Gene Regulation
  - Panel I1 – Imaging and Technology Development
  - Panel I3 – Immunology, Signalling and Stem Cells
  - Panel I4 – Novel Therapeutics
  - Panel I5 – Prevention and Quality of Life
First 3 competitions – examples of funded projects

Dr Jeffrey Wrana, Mount Sinai Hospital (Panel I1 - INNOV12-1)

**Establishing a biological network strategy for personalizing cancer diagnosis, prognosis and drug development using genitourinary cancer as a model**

- Dr Wrana is addressing an important problem in bladder cancer by adapting a molecular analysis tool, initially developed for breast cancer, to help distinguish aggressive from non-aggressive bladder tumours that will allow doctors to deliver personalized, more effective treatment to their patients. Using this analysis platform, the team will also explore the molecular basis underlying bladder cancer progression and identify key targets that could be quickly advanced to develop new therapies.

Dr J Geoffrey Pickering, University of Western Ontario (Panel I2 - INNOV12-1)

**Stabilization of tumour vessels**

- Much research has explored the possibility that starving a tumour of its blood supply will kill the tumour, called anti-angiogenesis, and several cancer treatments now include anti-angiogenesis drugs, however the benefits of these treatments have been somewhat disappointing. Dr Pickering is testing the contradicting idea that improving the blood supply to tumours will actually reduce spread (metastasis), an approach which may also improve the delivery of cancer drugs by allowing them to reach the entire tumour, and radiation therapy which works better when tumours receive enough oxygen through the blood.

Dr Senthil Muthuswamy, Ontario Cancer Institute/PMH (Panel I3 - INNOV12-2)

**A novel 3D cell culture model for pancreatic cancer initiation and progression**

- Dr Muthuswamy has developed a new 3D model to analyze how pancreatic cells develop and grow. Dr Muthuswamy is now using this model to identify the molecular events that cause pancreatic cancer to develop from benign lesions, with the goal of finding better ways to control and treat one of the deadliest types of cancer.

Dr Robert Korneluk, Children's Hospital of Eastern Ontario (Panel I4 - INNOV12-2)

**Synergistic combination of IAP antagonists and oncolytic viruses to treat cancer**

- Experimental drugs known as SMCs can trigger death in cancer cells without causing the toxic side effects seen with radiation or chemotherapy. Dr Korneluk is combining SMC drugs with other cancer fighting agents, including viruses, to increase their impact with the goal of starting a clinical trial to study these effects in humans.
First 3 competitions – examples of funded projects

Dr Tavis Campbell, University of Calgary (Panel I5 - INNOV12-2)

A randomized controlled trial of light therapy on biomarkers, sleep/wake activity and quality of life in individuals with post treatment cancer related fatigue

- Cancer related fatigue (CRF) is seen in 90% of cancer patients and is a serious symptom brought on by chemotherapy and radiation that can have a huge impact on the quality of life of patients, with 35% of patients experiencing persistent CRF even after the 5 year post cancer benchmark. Light therapy has been used for fatigue associated with other diseases and this study led by Dr Campbell will be the first to assess the ability of light therapy to improve CRF in post treatment cancer survivors.

Dr Qiyin Fang, McMaster University (Panel I2 – INNOV13-1)

Colon mapping and colonoscopic localization using near infrared imaging of vascular patterns

- Dr Qiyin Fang is developing a new imaging technology using a near-infrared imager to more precisely map pre-cancerous or cancerous polyps in the lining of the colon, information which can be used in subsequent surgical and colonoscopic procedures. The colon’s constant contractions makes it difficult to relocate lesions found during standard colonoscopy therefore a more accurate, reproducible method of finding these tumours will significantly improve the diagnosis and treatment of colorectal cancer, the second most common cause of cancer death in Canada.

Dr Steve Bilodeau, CHUQ Centre Hospitalier Universitaire de Quebec (Panel I1b – INNOV13-1)

Controlling the cancer-specific gene expression program

- Cancer is highly complex and diverse based on the combination of genes expressed in each cancer. While most research programs are focusing on differences between types of cancer, Dr Bilodeau is interested in understanding the similarities. This project will study common mechanisms regulating the gene expression program in different cancers, paying particular attention to a group of proteins he discovered, in hopes of discovering new avenues for therapeutic intervention.

Dr Ryan Rhodes, University of Victoria (Panel I5 – INNOV13-1)

Exercise games and physical activity: Does multi-player online play improve adherence?

- While physical activity is effective at reducing an individual’s risk of developing cancer, promoting a healthy lifestyle can be challenging, particularly in children. Dr Ryan Rhodes is testing whether an interactive exergame bike – an exercise bike connected to a videogame – is more effective at supporting fitness when it is connected to the internet to allow online play capabilities in the family home.
How do I apply?

- applications will only be accepted through our online submission process (EGrAMS)
- 2 step submission process – abstract registration followed by full application submission

Step 1: Abstract registration

1. an innovation statement which explicitly describes how the project is “innovative”. Note that the next logical step or incremental advancement on published data is not considered innovative
2. the names of the investigator(s)
3. a scientific abstract and keywords
4. the names of suggested reviewers/exclusions and panel choices
5. Research tracking information

Note: Limit of one abstract registration per PI/co-PI in a competition.
Step 2: Full application

1. as part of the **public (non-scientific) summary**, a **cancer relevance statement** clearly describing the potential of this project to impact cancer control

2. a **scientific abstract** (the abstract can be updated from the abstract registration submission)

3. an **innovation statement** (this statement can be updated from the abstract registration submission). The statement should explicitly describe how the project is “innovative”. Ensure that the statement focuses on innovation and not significance. Note that the next logical step or incremental advancement on published data is not considered innovative

4. the names and **CV’s** of the investigator(s) (participants can be updated from the abstract registration submission, CV’s must be added for the full application)

5. a detailed **scientific proposal** clearly stating the aims of the project including any previous work done in the area, experimental design, methods and analysis. Note that preliminary data is allowed but not required. Details of the investigator(s) including which member(s) of the research team will be responsible for which aspect of the project and a rationale for their inclusion in the project are required, and a description of the research environment where the work will take place.

6. a **vision statement** explicitly describing how the proposed work could move the field forward and accelerate progress in cancer research. This statement should also clearly address the expected “next steps” following completion of the project.

7. a **budget justification** related to the supplies, equipment and personnel associated with the research project. This must include the number of personnel required to complete the work and a description of their experience and/or education level and their commitment to the project.
Questions?

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