Funding Opportunities and Activities in Canada for Bioinformatics and Computational Biology: CIHR, NSERC and Genome Canada

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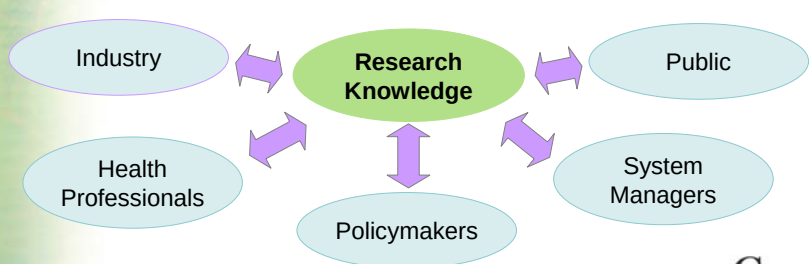
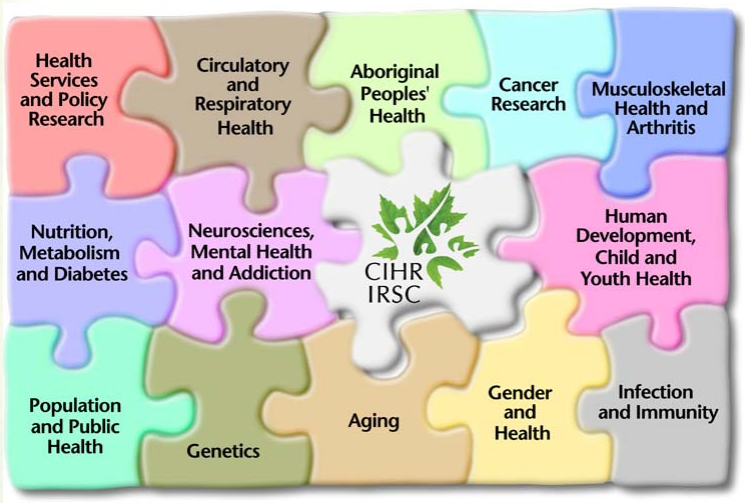
CIHR's Objective

To excel, according to internationally accepted standards of scientific excellence in

- ***the creation of new knowledge and***
- ***its translation into***
  - *improved health for Canadians,*
  - *more effective health services and products and*
  - *a strengthened Canadian health care system…*

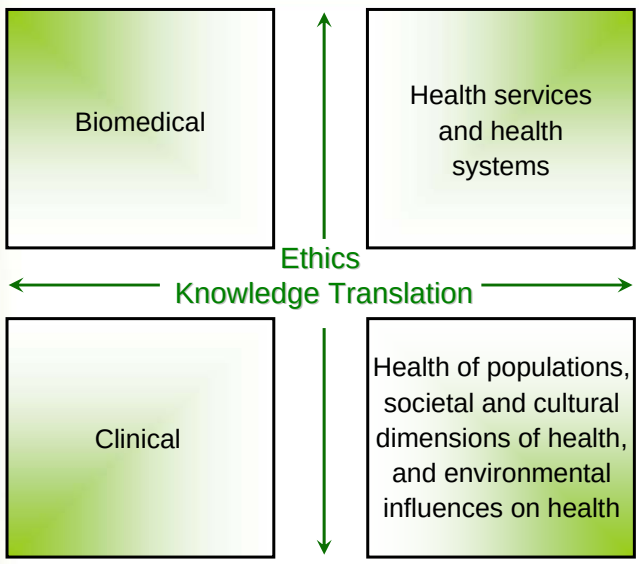


CIHR's 13 Institutes



Canada

CIHR's Four Research Themes



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Two Major Avenues of Funding

(1) Open Competitions:

- Investigator-initiated research proposals
- Any area of health research
- ~ 70% total funding

(2) Strategic Funding Opportunities:

- Priority areas and terms of reference chosen by Institutes and partners
- ~ 30% total funding

Funding Opportunities Database:
http://www.cihr-irsc.gc.ca/e/780.html

The Open Operating Grants Program (OOGP)

- **CIHR's largest single program (~53% of Grants & Awards budget: $378.5M in FY2007-08)**
- **Provides operating funds to support research excellence in all areas of health research**
- **No restrictions on areas of inquiry**
- **No maximum or minimum with respect to funds being requested**
- **No prescribed durations for grants awarded (although historically the majority of grants are 3 – 5 years)**

OOGP – Genomics Committee (GMX)

Mandate (revised July 2008):

- **Technical or conceptual advances in genome research related to genome mapping, genotyping technologies and high-throughput methodologies such as next generation sequencing.**
- **Conceptual and technical advances in meta-genomic analysis, model organisms, functional genomics; including molecular systems-level analysis that apply several large-scale, genome-wide techniques.**
- **Application of synthetic biology approaches to genome research and advances in proteomics, epigenomics or bioinformatics as they relate to any of these problems.**

http://www.cihr-irsc.gc.ca/e/4657.html

Examples of Funded Projects – OOGP

- **Global exploration of cellular networks and pathways in yeast – Brenda Andrews and Charlie Boone; $5.7M over 9 years**
- **Novel statistical approaches for studying complex genetic diseases – Michael Walter; $706K over 6 years**

CIHR Funded Research Database:
http://www.cihr-irsc.gc.ca/e/826.html

Other Funding Mechanisms

Team Grant Program:

- **CIHR Team in model organism interactomes and human diseases – Andrew Emili, Jack Greenblatt, John Parkinson, Janet Rossant, Mike Tyers, Shoshanna Wodak, Zhaolei Zhang; $1.3M over 2 years**

University-Industry Program

International Opportunities Program

Proof-of-Principle Program

etc…

Programs for Capacity Building

Strategic Training Initiatives in Health Research:

- **Bioinformatics training for biomedical research – Gertraud Burger (U de Montréal); $1.85M over 6 years**
- **Bioinformatics training for health research – Steven Jones (BC Cancer Research Centre, UBC, SFU); $1.87M over 6 years**

New Investigator Program:

- **Bioinformatics for the discovery and characterization of transcription factor binding sites – Wyeth Wasserman; $274K over 5 years**

Doctoral Research Awards:

- **Bioinformatics approaches to the nuclear magnetic resonance structure determination of homologous proteins – Kyoko Laura Yap; $60K over 3 years**

CIHR's Institute of Genetics

Systems and computational biology identified as a research priority theme in 2008:

- aims to generate quantitative and predictive models of biological structures and whole biological systems
- involves computational modeling, theory and experimentation
- important interdisciplinary focus for post-genome biology since large-scale genomics approaches provide comprehensive data that will enable modeling of interactions in complex systems

IG Priorities and Planning (P & P) Committee members:

Brenda Andrews (Chair)	Charlie Boone
Don Moerman	Steve Michnick
Steve Jones	Gerry Johnston

Future Directions – Institute of Genetics

P & P Committee is developing a strategic and operational plan to be discussed at the next Institute Advisory Board meeting (Dec. 2008).

Training in the area of computational biology has been recognized as a potential priority.

For more information, contact Ursula Danilczyk:

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Natural Sciences and Engineering Research Council – NSERC

- National instrument for making strategic investments in Canada's capability in science and technology.
- Programs support investments in people, discovery and innovation.
- Annual budget ~$900M.

http://www.nserc.gc.ca/index.htm

NSERC CRSNG

Canada

NSERC Support for Bioinformatics

Funding for bioinformatics and computational biology includes statistical and computing aspects, development of new tools, and application to life science projects (without a health research focus)

Discovery Grants Program:

http://www.nserc.gc.ca/professors_e.asp?nav=profnav&lbi=a1

Collaborative Health Research Projects:

http://www.nserc.gc.ca/professors_e.asp?nav=profnav&lbi=a3

Canada

Genome Canada

Established in 2000 to develop and implement a national strategy for supporting large-scale genomics and proteomics research projects

http://www.genomecanada.ca

GenomeCanada

Genome Canada Support for Bioinformatics

Research Projects:

- **Large-scale projects of multidisciplinary teams from multiple labs or centres, typically ~$10M over 4 years**
- **Bioinformatics research generally one component of the overall project**
- **Example: Integrative Biology project, led by Brenda Andrews**

http://www.genomecanada.ca/en/portfolio/research/competition.aspx

Genome Canada Support for Bioinformatics

Science & Technology Platforms:

- **Provide the tools and expertise to analyze genomes: DNA sequencing, mapping, genotyping, microarrays, genetic analysis, proteomics and bioinformatics**
- **Support both Genome Canada funded projects and other researchers on a fee-for-service basis**
- **Bioinformatics services provided through Platforms in Calgary, Montreal (McGill), Toronto and Vancouver (BC Cancer Centre)**

http://www.genomecanada.ca/en/portfolio/technology.aspx