

This PIP Digest describes how cancer research is funded in our country and provides an overview of some key research initiatives.

CANCER RESEARCH: Cancer Research Funding in Canada

Key Concepts

- How research is funded
- Key research initiatives/organizations in the Canadian research landscape

Related PIP Digest

- Cancer Research: Types of Research

In Canada, cancer research is carried out by researchers, clinician-researchers and trainees working at universities, hospitals, research institutes, government agencies (such as National Research Council Canada), research consortia, pharmaceutical companies, biotechnology enterprises, and other health-related organizations.

Research is funded by government organizations/agencies (both federal and provincial), academic institutions, charities, professional associations, and industry (for example, pharmaceutical companies and medical device companies). The research conducted by researchers in Canada may also be funded by government agencies or charities located outside of Canada. The U.S.-based National Cancer Institute, for example, is the world's largest funder of cancer research and a major non-Canadian funder of cancer researchers in Canada.

Calls for Proposals

Typically, research funders put out calls for proposals or applications with specific deadlines. A call may be open

or non-restrictive, which means that researchers determine what they will study (this is also called "investigator-initiated"). Alternatively, a call may be directed or priority-driven, which means that the funders identify the areas of research that they will support and the proposals submitted by researchers must fit within the specific areas.

A letter of intent (LOI) or an expression of interest (EOI), may be required for some funding calls. Researchers with the most promising LOI/EOIs will be selected to submit a full proposal. The LOI/EOI process reduces the time that researchers need to spend putting together a large proposal as well as the time spent by funding organizations on evaluating proposals.

Funders may support the direct costs of research (operating costs), equipment and other infrastructure, and related support (training programs, workshops, travel awards). They may also support awards for trainees at various levels (undergraduate, graduate, and post-graduate), although more commonly, trainees are supported through the operating grants given to principal investigators or through grants or stipends from their university. Researchers may also receive funding through career awards or research chairs at various points in their career.

Adjudicating Research Proposals

In Canada, research proposals are evaluated through a competitive, merit-based review, which means that the available monies are used to fund those proposals determined to be the best. Some form of peer review is used to evaluate proposals. Peer reviewers are researchers who are experts in a given area (they may be within or outside of Canada) and may include knowledge users like clinicians and patients.

Research that involves people must undergo an ethics review to ensure that the research is designed to maximize benefits and minimize harms. Canada's Tri-Council, which comprises the country's three major

federal funders of academic research, stipulates that research must ensure:

- free and informed consent
- privacy and confidentiality
- justice and inclusiveness
- respect for vulnerable persons

The Canadian Institutes of Health Research (CIHR), one of the Tri-Council members, has a variety of resources on research ethics, including:

- Guidance for Developing Partnerships with Patients and Researchers
- Best Practices for Research Involving Children and Adolescents
- Ethics of Health Research Involving First Nations, Inuit and Métis People
- Partnerships with the For-Profit Private Sector
- Privacy and Confidentiality in Health Research
- Responsible Conduct of Research
- Stem Cell Research

These are available at <http://www.cihr-irsc.gc.ca/e/29338.html>.

The “Tri-Council” refers to Canada’s three federal granting agencies: the Canadian Institutes of Health Research (CIHR), the Social Sciences and Humanities Research Council (SSHRC), and the Natural Sciences and Engineering Research Council (NSERC). *The Tri-Agency Framework: Responsible Conduct of Research* (2016) is available at <http://www.rcr.ethics.gc.ca/eng/policy-politique/framework-cadre/>.

Canadian Cancer Research Alliance

The Canadian Cancer Research Alliance (CCRA) is an alliance of organizations that collectively fund most of the cancer research conducted in Canada – research that leads to:

- better ways to prevent cancer
- diagnose cancer
- treat cancer
- improve patient and survivor outcomes

Its members include federal research funding programs/agencies, provincial research agencies, provincial cancer care agencies, cancer charities, and other voluntary associations.

The Executive Office is supported by the Canadian Partnership Against Cancer, the steward of the Canadian Strategy for Cancer Control. The Partnership works with Canada’s cancer community to ensure fewer people get cancer, more people survive cancer and those living with the disease have a better quality of life. The Partnership is committed to enhancing the cancer research environment in Canada through its support of the CCRA and CCRA’s role in coordinating the cancer research funding system. As a member and funder of the CCRA, the Partnership collaborates with other member organizations to enable the strategy for cancer research in Canada. The Partnership is funded by Health Canada.

The CCRA produces strategic plans for the member organizations that detail priorities for collaborative action on various cancer research areas. CCRA also publishes an annual report on the investment made in cancer research by its members and other organizations that fund cancer research. For more information, see the CCRA website at <http://www.ccra-acrc.ca>.

CCRA is also a member of the International Partnership Against Cancer (ICRP) and contributes data to its searchable

research

database. ICRP is

alliance of cancer

funding organizations from around the globe working together to enhance global collaboration and strategic coordination of research. For more information about the ICRP, see <https://www.icrpartnership.org/>.



Key Canadian Initiatives

Many Canadian initiatives, platforms, organizations, and networks play key roles in supporting cancer research. Some of these are described below.

Created in 1989 by the federal, provincial, and territorial Evidence governments, the **CADTH** Driven. **Canadian Agency for Drugs and**

Technologies in Health (CADTH) is an independent, not-for-profit organization responsible for providing health care decision-makers with objective evidence to help make informed decisions about the optimal use of health technologies. The **CADTH pan-Canadian Oncology Drug Review (pCODR)** is an evidence-based, cancer drug review process. The pCODR process is designed to bring consistency and clarity to the assessment of cancer drugs by reviewing clinical evidence, cost-effectiveness, and patient perspectives, and using this information to make recommendations to Canada's provinces and territories (except Quebec)¹ in guiding their drug funding decisions. For more information, see <https://www.cadth.ca/>.

The **Canadian Cancer Trials Group (CCTG)** is a group of researchers and clinician-researchers that provides expertise and infrastructure for

national and international multi-centred phase I-III cancer clinical trials for all cancer types. CCTG is supported by the Canadian Cancer Society and located at Queen's University. For more information, see <https://www.ctg.queensu.ca/>.

The **Canadian Cancer Clinical Trials Network (3CTN)** is a multi-funded initiative to improve the efficiency and quality of academic clinical trials in Canada.

3CTN provides support and coordination for a network of

¹Institut national d'excellence en santé et en services sociaux (INESSS) carries out this function in Quebec. For more, see <https://www.inesss.qc.ca/en/home.html>.

teams at cancer treatment centres and hospitals across the country. For more information, see <http://3ctn.ca/>.

The Canadian Centre for Applied Research in Cancer



Control is a pan-Canadian research centre with main hubs in Toronto and Vancouver that works with independent researchers

in interdisciplinary programs of health economics, services, policy and ethics research. Funded by the Canadian Cancer Society, the centre's mission is to improve cancer control and the delivery of care through interdisciplinary leadership in health economics, services, policy, and ethics research, education and knowledge translation. For more information, see <http://cc-arcc.ca/>.

High-quality biospecimens are critical to the research enterprise. The **Canadian Tissue Repository Network (CTRNet)** is a national cancer research resource that links cancer researchers with certified provincial tumour/tissue banks. CTRNet serves to establish and promote mechanisms that raise biospecimen quality and improve access to biospecimens for researchers. For more information, see <https://www.ctrnet.ca>.



The **Canadian Council on Animal Care (CCAC)** is an independent body that oversees the ethical use of animals in science in Canada. In addition to guidelines, documents and policies, the CCAC compiles comprehensive annual statistics on the number of animals used in science and is responsible for the

disseminating this information to Canadians. For more information, see <http://www.ccac.ca/>.

Funded by the federal government, **Genome Canada** provides large-scale investments to develop new technologies, connect the public sector with private industry, and create solutions to problems of national



GenomeCanada

interest, such as health, sustainable resources, the environment, and energy. Health is the largest research portfolio; and cancer the largest portfolio within health. Along with provincial governments, Genome Canada supports six regional genome centres: Genome British Columbia, Genome Alberta, Genome Prairie, Ontario Genomics, Genome Québec, and Genome Atlantic. For more information see <https://www.genomecanada.ca/>.

The **International Cancer Genome Consortium (ICGC)** is a voluntary, multi-nation scientific organization that provides a forum for collaboration among the world's leading cancer and genomic researchers. The ICGC was launched in 2008 to coordinate large-scale cancer genome studies in tumours from 50 cancer types and/or subtypes that are of major importance across the globe. It has been said that no cancer therapy is developed today without the genomic knowledge provided by ICGC. For more information, see <http://icgc.org/>.

Although the federal government announced in 2018 that it was transferring the investments from the **Networks of Centres of Excellence (NCE)** of Canada program to a "New Frontiers in Research



Fund," it is noteworthy that the NCE program has supported several significant cancer initiatives, including:



BioCanRx network works to accelerate the development of leading-edge immune oncology therapies. It focuses on translating Canadian technologies from the lab into early-phase clinical trials and also identifies the socio-economic considerations needed for the adoption of these therapies by healthcare systems. For more information, see <http://www.biocanrx.com/>.



The Center for Commercialization of Cancer Immunotherapy focuses on the development, translation, and commercialization of the cancer immunotherapies and accelerating their market access. For more information, see <http://www.centrec3i.com/>.



EXACTIS

Exactis is focused on building a strong research network for personalized medicine across Canada. Its Personalize my Treatment (PMT) is a unique digital cancer registry, which stores detailed genetic and molecular data about patients' cancers over the duration of their cancer care that can be accessed by academic or industry clinical researchers seeking patients with specific profiles for clinical studies. Exactis also provides services to facilitate clinical trials of

cancer therapies. For more information, see <https://www.exactis.ca>.

Starting in 2009, CIHR worked to catalyze a coalition of federal, provincial and territorial partners – all dedicated to the integration of research into care. Patient-oriented



research refers to a continuum of research that engages patients as partners, focusses on patient-identified priorities and improves patient outcomes. The objective of SPOR – the **Strategy for Patient-Oriented Research** - is to foster evidence-informed health care by bringing innovative diagnostic and therapeutic approaches to the point of care to ensure greater quality, accountability, and accessibility of care. Through SPOR, capacity-building opportunities are provided to develop patient-oriented research capacity. For more information, see <http://www.cihr-irsc.gc.ca/e/41204.html>.

The **Structural Genomics Consortium** (SGC) is a public-private partnership that catalyzes research in new areas of human biology and drug discovery by focusing on those areas of the



human genome that are less well-studied. The SGC accelerates research in these new areas by making all its research output freely available to the scientific community and by creating an open collaborative network of scientists in universities around the world and in global pharmaceutical companies. For more information, see <http://www.thesgc.org/>.