# CANCER RESEARCH INVESTMENT IN CANADA, 2022

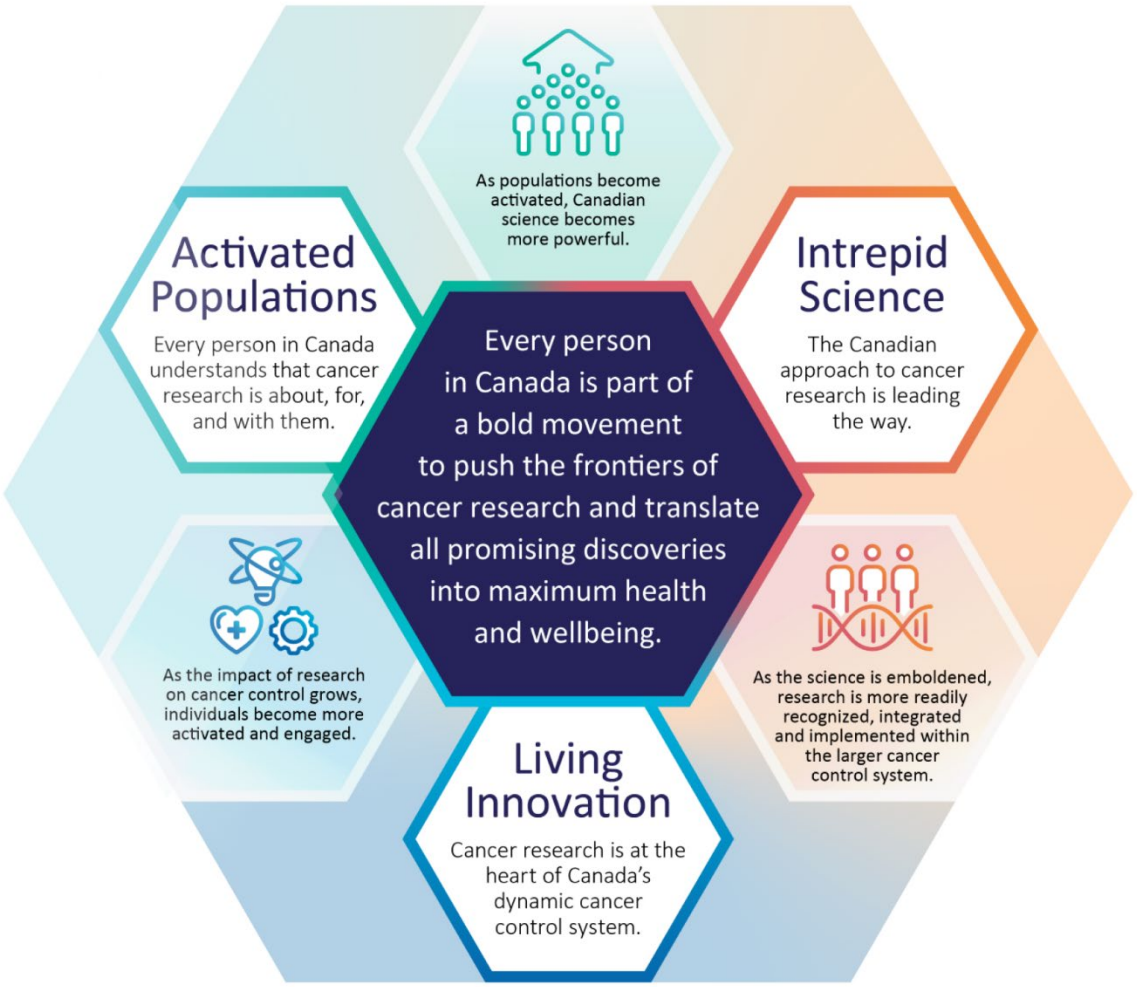
CCRA ACRC
Canadian Cancer Research Alliance
Alliance canadienne pour la recherche sur le cancer

CANADIAN PARTNERSHIP AGAINST CANCER

JULY 2025

# Discovery Together

## Canada's Vision for Cancer Research



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# MESSAGE FROM THE CCRA ADVISORY BOARD CHAIR & CEO OF THE CANADIAN PARTNERSHIP AGAINST CANCER

The establishment of the Canadian Cancer Research Alliance (CCRA), led by Drs. Victor Ling, Philip Branton, and Gerald Johnston in the early 2000s, has become a forum that has fostered trusted, collegial relationships among Canada's research funding leaders, accelerated investment in translational research, and facilitated partnered funding on specific research platforms that will provide a continued legacy for cancer research. With secretariat support provided by the Canadian Partnership Against Cancer, the CCRA has continued to carry out its core activities and this includes reporting on Canada's investment in cancer research.

*Dr. Dajan O'Donnell*

This report looks at the cancer research investment for years 2005 to 2022, an 18-year time frame. The last three years of this time frame overlapped with the initial years of the COVID-19 pandemic. Thus, an additional focus was to interrogate the extent to which the pandemic influenced the level of investment in cancer research across the organizations covered in the survey. The trends noted in this report provide some insights into areas that the CCRA should prioritize for consideration in the coming years as we continue to navigate through a constantly changing landscape.

*Dr. Craig Earle*

As always, we welcome your thoughts and comments as you review this report and look forward to continuing to track and report on the cancer research investment landscape and how it helps enable the priorities of the Canadian Strategy for Cancer Control. A sustainable cancer research system focused on collaboration and strategic coordination helps accelerate the translation of research into policy and practice change and ultimately ensures equitable access to quality cancer care for all people in Canada.

Dajan O'Donnell, PhD
Chair, CCRA Advisory Board
Director, Scientific Affairs & Partnerships, Cancer Research Society

Craig Earle, MD, MSc, FRCPC
Chief Executive Officer
Canadian Partnership Against Cancer

# EXECUTIVE SUMMARY

This annual update of the investment in cancer research in Canada for years 2005 to 2022 revealed the following:

- The overall cancer research investment was fairly flat from 2019-2022, although the number of new and in-progress projects continued to decline.
- There was substantial variability in investment levels by funding organization.
- Research investment in breast, prostate and blood cancers declined from 2020 on.
- Investment in operating grants fell steeply from 2020, particularly investments offered through national priority-driven competitions.
- There was a precipitous drop in operating grant investment in early detection, diagnosis & prognosis (biomarkers), the result of a wind-down of several large-scale projects.
- When examined by start year, total grant values for operating grants showed a percent decline in 2020-2022 compared to 2017-2019 across all funding sectors.
- The operating grant investment in cancer biology continued its downward trend, although the Canadian Institutes of Health Research continued to support cancer biology research at a consistent level.
- Annual cancer research investments by province (where province was based on the location of the nominated principal investigator) were variable.

Despite some discernable impacts attributable to the COVID-19 pandemic, many research funders employed various strategies to mitigate the impacts and maintain a stable level of research funding.

In future iterations of this report, changes in the investment levels will continue to be monitored with an eye to determining the impact of external factors.

# 1 INTRODUCTION

## THIS REPORT

The Canadian Cancer Research Alliance (CCRA) has been tracking the investment in cancer research since 2005. This work has uncovered trends in cancer research funding in Canada, supporting the strategic development of several research frameworks and research recommendations, facilitating new funding partnerships, and galvanizing funding for new areas of focus.

This report covers the investment in cancer research for the 18-year period, 2005 to 2022. Funding for 2020 to 2022, the initial period of the COVID-19 pandemic, will be highlighted to explore whether potential impacts on cancer research funding were observable.

The COVID-19 pandemic had major and sustained impacts on global health, health systems, and economies. The major disruptions to the cancer care system in Canada have been well documented by the Canadian Partnership Against Cancer.[1] The pandemic also had major impacts on the cancer research system. Public health measures introduced to contain the spread of the virus during this time of great uncertainty resulted in:

- lab closures and loss of experimental model systems (Arnold, 2020; Grimm, 2020; Servick et al., 2020)
- loss of access to research space, data, participants, and other institutional resources (tools and equipment) (Donahue et al., 2021; Pyhältö, Tikkanen & Anttila, 2023)
- weakened collaborations due to lack of formal and informal in-person conferences and meetings (Jamali et al., 2023; Sims et al., 2023) and erosion of 'scholarly support networks' (Pyhältö, Tikkanen & Anttila, 2023)
- variable drops in recruitment across Canadian academic cancer clinical trials (Sundquist et al., 2022)
- workload increases and other challenges experienced by some research administration professionals at Canadian institutions (Sharma, 2023)

In addition, more systemic and longer-lasting effects have been documented. These include:

- decreased revenues for non-governmental organizations with cancellations of fund-raising events (Fox et al., 2021)
- added time costs with re-starting studies that had been stopped (Fox et al., 2021)
- delayed graduation dates and interrupted career trajectories (Statistics Canada, 2020; Suart et al., 2021)
- lowered application rates to funding opportunities among women (Roubinov et al., 2022)
- lowered research productivity and fewer publications by women authors, with "academic mothers" being most negatively affected (Gordon & Presseau, 2023; King & Frederickson, 2021; Kwon, Yun & Kang, 2023; Moschella-Smith & Potter, 2024; Muric et al., 2021; Pebdani et al., 2023)
- decreased research time among female principal investigators, those in the 'bench sciences' and those with young children (Myers et al., 2020)
- higher levels of stress, social isolation and lower well-being among female and racialized faculty due to the shift of academic work environments to remote/virtual settings, with the most pronounced impacts among pre-tenured female faculty (Davis et al., 2022)
- increased workloads, stress, and decreased self-care among early and mid-career faculty (Kotini-Shah et al., 2022)
- 'displacement' of research to COVID-related research (Riccaboni & Verginer, 2022).

[1] The Partnership's resource, *Road to recovery: Cancer in the COVID-19 era*, documents these impacts and the mitigation strategies undertaken by cancer care agencies and others health care organizations in Canada (see https://www.partnershipagainstcancer.ca/topics/cancer-in-covid-19-era/summary/).

## ABOUT THE DATA

In its formative years, the CCRA members self-funded the establishment of the Canadian Cancer Research Survey (CCRS) to capture the investments in peer-reviewed cancer research made by the CCRA members and other major funders. Currently, Canada is the **only** country that routinely tracks and reports on research commitments for a broad swath of cancer research funders. The CCRS is recognized for the quality of its value-added coding and use of novel approaches to reporting. Data from the CCRS is contributed to the International Cancer Research Partnership, of which the CCRA is a long-standing member.

Since the inception of the CCRS, submitted research projects have been coded using various typologies, enabling the investment to be analyzed in different ways. Unless otherwise noted, annual investments are based on pro-rated calculations for the calendar year and thus may vary from fiscal year reporting by the organization/program. Details on the methodology used and the coding conventions can be found at https://www.ccra-acrc.ca/wp-content/uploads/2025/02/CCRS_Methods_v2025-02-13.pdf

To get a sense of the scale of the cancer research investments within the larger cancer research ecosystem, a series of estimates were computed based on publicly available data. The research investments made by large hospital foundations may be as much as $170M annually, with much of this investment supporting researcher salaries and equipment, infrastructure and research facilities. Other philanthropic donations directed to specific researchers or research programs, however, are nearly impossible to track. Industry-sponsored cancer trials may account annually for more than $350M, although these figures are very hard to verify. In addition, researchers in Canada are also the recipients of research monies from other jurisdictions, most often from the U.S. National Cancer Institute (~$25M in 2022). All told, the cancer research investment from domestic and international sources may be approximately $1.1B per year.

This report includes the cancer research investments in over 30,000 projects made by 40 organizations, along with the partnered/leveraged funding received to support those projects. It captures nearly all Federal research funding organizations and programs as well as many of the provincial and charitable organizations that fund cancer research either solely or as part of their broader research funding mandates.

# 2 INVESTMENT TRENDS

Canada's investment (unadjusted) in cancer research—from all funders and funding programs tracked in the CCRS—is shown in the line (left axis) in Figure 1 below. The pattern is one of dramatic growth from 2005 to 2009, a decline that started in 2011, and a smaller uptick since 2017, with investment hovering in the low $500 millions from 2018 to 2022. Years 2020 to 2022 correspond to the years of the pandemic. The bars shown in this graph represent the number of projects actively funded in each of the years covered (right axis). The number of actively funded projects was lower in 2020 and 2021 when compared with previous years, part of a declining trend that started a decade before. This change in the number of funded projects will be elaborated further in this report.

Figure 1

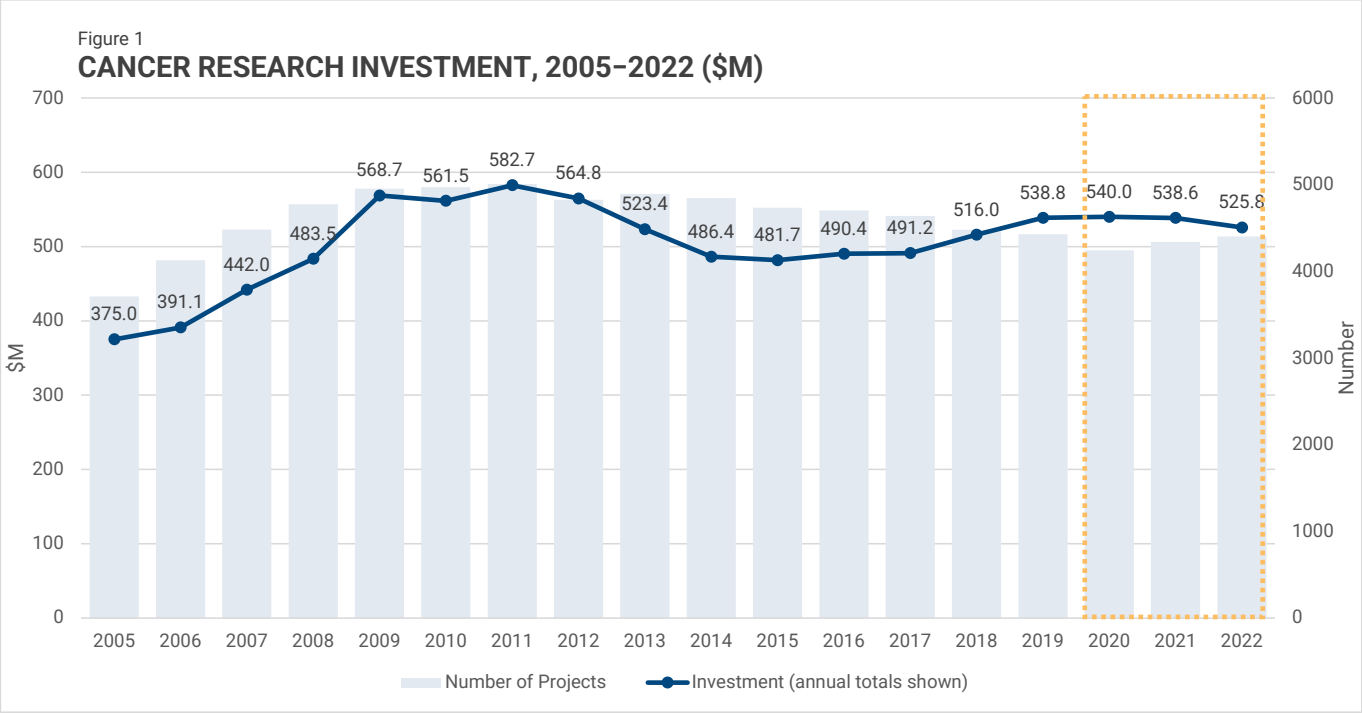



Figure 2 shows the investment by funding sector. There was a reduction in 2022 in the investment from 'other partnered/leveraged funding,' which represents institutional, industry, and foreign funding sources but little change in the investment levels from other sectors. This reduction found in 'other partnered/leveraged funding' was in large part attributable to a dip in cancer research funded by Genome Canada, which administers genomics health research funding programs (not cancer specific) with a partnered funding requirement.[2]

[2]In the 2022-2023 period, Genome Canada was preparing to launch the more than $200M Canadian Precision Health Initiative, Canada's largest-ever collection of genomic data. Phase 1 was launched in February 2025 and includes several cancer-related projects.

Figure 2

**CANCER RESEARCH INVESTMENT BY SECTOR, 2005-2022 ($M)**

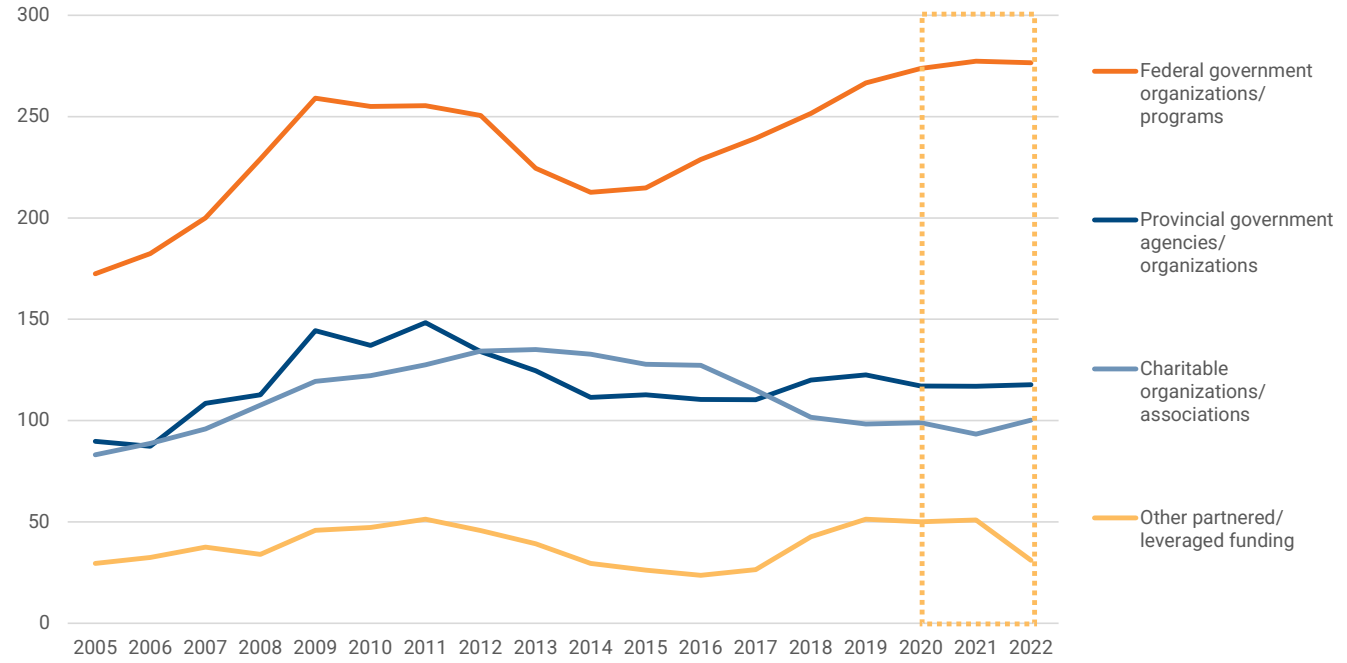



Table 1 provides further details on the investment by specific organizations. Patterns were variable. Among the federal research funders/programs, there were noticeable increased investments by the Canadian Institutes of Health Research (CIHR) and Canada Foundation for Innovation (CFI). Funding to projects under the New Frontiers in Research Fund started to flow in 2019, with cancer-related projects among the successfully funded grants. There was a decline in funding of cancer-related projects through programs offered through Genome Canada and the Natural Sciences and Engineering Research Council (NSERC) in 2023.

In terms of provincial funding organizations and agencies, the Fonds de recherche du Québec (FRQ) - secteur Santé and CancerCare Manitoba had slight upticks in their investment levels while research investments from the province of Ontario (the Ontario Institute for Cancer Research and the Ontario Ministry of Colleges and Universities) dipped.

Variable patterns were found for many of the charitable organizations with both high and low levels of investment during the 2020 to 2022 period. The cancellation of funding competitions for the Leukemia & Lymphoma Society of Canada in 2020/2021 as a result of the pandemic, and a major re-vamping of funding programs for Movember resulted in substantial decreased investments for these organizations specifically.

Table 1

# CANCER RESEARCH INVESTMENT BY FUNDER, 2017-2022 ($M) [1,2]

## Federal government organizations/programs

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| BioCanRx | 3.56 | 4.20 | 3.90 | 2.85 | 3.56 | 2.98 |
| Canada Excellence Research Chairs | 0.94 | 0.00 | 1.34 | 1.79 | 1.79 | 1.79 |
| Canada Foundation for Innovation | 16.34 | 23.21 | 23.58 | 22.29 | 27.15 | 25.28 |
| Canada Research Chairs Program | 18.56 | 18.96 | 19.65 | 21.26 | 22.35 | 22.36 |
| Canada Research Coordinating Committee - New Frontiers in Research Fund | | | 1.30 | 3.92 | 4.55 | 4.17 |
| Canadian Institutes of Health Research | 153.20 | 162.55 | 172.69 | 180.26 | 177.96 | 189.23 |
| Canadian Partnership Against Cancer | 5.89 | 4.40 | 5.25 | 3.62 | 4.76 | 4.78 |
| Genome Canada | 9.42 | 10.37 | 11.60 | 10.85 | 9.82 | 3.60 |
| National Research Council Canada | 3.48 | 4.10 | 3.20 | 4.80 | 3.92 | 4.25 |
| Natural Sciences and Engineering Research Council | 20.45 | 17.92 | 19.05 | 18.30 | 16.96 | 13.93 |
| Networks of Centres of Excellence | 0.93 | 0.84 | 0.81 | 0.51 | 0.64 | 0.22 |
| Public Health Agency of Canada | 2.33 | 1.69 | 0.97 | 0.36 | 1.17 | 1.49 |
| Social Sciences and Humanities Research Council | 3.80 | 3.03 | 2.61 | 2.15 | 2.05 | 2.11 |
| Other federal agency | 0.43 | 0.32 | 0.65 | 0.84 | 0.70 | 0.42 |

## Provincial government agencies/organizations

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Alberta Innovates [3] | 9.57 | 5.61 | 4.47 | 3.84 | 1.85 | 1.16 |
| CancerCare Manitoba | 2.82 | 4.05 | 4.11 | 4.92 | 5.39 | 7.89 |
| Fonds de recherche du Québec - secteur Santé | 13.78 | 15.58 | 17.11 | 18.23 | 18.22 | 17.01 |
| Michael Smith Health Research BC | 1.46 | 2.33 | 2.81 | 2.82 | 3.32 | 3.69 |
| Newfoundland and Labrador Centre for Applied Health Research | 0.14 | 0.06 | 0.00 | | | |
| Nova Scotia Cancer Care Program - Nova Scotia Health Authority | 0.02 | | | | 0.01 | |
| Ontario Health - Cancer Care Ontario | 1.30 | 1.37 | 0.51 | 0.30 | 0.30 | 0.30 |
| Ontario Institute for Cancer Research | 53.76 | 55.28 | 56.56 | 52.35 | 50.70 | 53.68 |
| Ontario Ministry of Colleges and Universities | 12.44 | 16.37 | 14.80 | 13.33 | 14.21 | 12.68 |
| Research Manitoba | 1.44 | 1.42 | 1.00 | 0.48 | 0.52 | 0.50 |
| Research Nova Scotia | 0.40 | 0.28 | 0.27 | 0.54 | 1.02 | 1.07 |
| ResearchNB | 0.66 | 0.57 | 0.29 | 0.26 | 0.70 | 0.56 |
| Saskatchewan Cancer Agency | 0.76 | 0.85 | 0.80 | 0.79 | 0.49 | 0.42 |
| Saskatchewan Health Research Foundation | 0.57 | 0.60 | 0.64 | 0.82 | 0.48 | 0.42 |
| Other provincial organization | 11.22 | 15.69 | 19.17 | 18.40 | 19.76 | 18.35 |

## Charitable organizations/associations

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|
| Alberta Cancer Foundation | 7.65 | 5.75 | 7.30 | 8.02 | 6.69 | 9.81 |
| Beatrice Hunter Cancer Research Institute | 0.36 | 0.23 | 0.20 | 0.17 | 0.42 | 0.70 |
| Bladder Cancer Canada | 0.05 | 0.07 | 0.07 | 0.10 | 0.07 | 0.20 |
| Brain Tumour Foundation of Canada | 0.64 | 0.62 | 0.41 | 0.35 | 0.49 | 0.64 |
| Breast Cancer Canada | 0.82 | 0.71 | 0.51 | 0.32 | 0.31 | 0.31 |
| C17 Research Network | 0.40 | 0.36 | 0.43 | 0.31 | 0.20 | 0.15 |
| Canadian Association of Radiation Oncology | 0.28 | 0.10 | 0.19 | 0.14 | 0.10 | 0.11 |
| Canadian Cancer Society | 46.48 | 38.64 | 36.50 | 35.30 | 32.67 | 41.58 |
| Cancer Research Society | 8.41 | 8.23 | 8.76 | 8.60 | 8.41 | 9.02 |
| Cole Foundation | 1.34 | 0.96 | 0.86 | 1.33 | 1.42 | 1.15 |
| Kidney Foundation of Canada | 0.15 | 0.15 | 0.18 | 0.18 | 0.15 | 0.11 |
| Leukemia & Lymphoma Society of Canada | 3.01 | 3.60 | 3.87 | 3.13 | 1.47 | 2.00 |
| Movember Canada | 12.12 | 8.89 | 7.00 | 4.06 | 2.07 | 0.82 |
| Myeloma Canada | 0.23 | 0.32 | 0.31 | 0.37 | 0.56 | 0.43 |
| Ovarian Cancer Canada | 0.22 | 0.20 | 0.15 | 0.63 | 2.67 | 3.03 |
| PROCURE | 0.60 | 0.48 | 0.33 | 0.23 | 0.08 | 0.08 |
| Pancreatic Cancer Canada | 0.84 | 0.61 | 0.03 | 0.73 | 0.85 | 0.70 |
| Pediatric Oncology Group of Ontario | 0.13 | 0.14 | 0.08 | 0.04 | 0.01 | 0.00 |
| Quebec Breast Cancer Foundation | 2.15 | 2.55 | 1.72 | 2.26 | 2.24 | 1.33 |
| Terry Fox Research Institute | 23.92 | 24.47 | 23.19 | 27.79 | 27.45 | 23.12 |
| Other charitable organization | 5.19 | 4.59 | 6.19 | 4.94 | 4.98 | 4.99 |

[1] The full 18-year investment is available on the CCRA website under Reports.

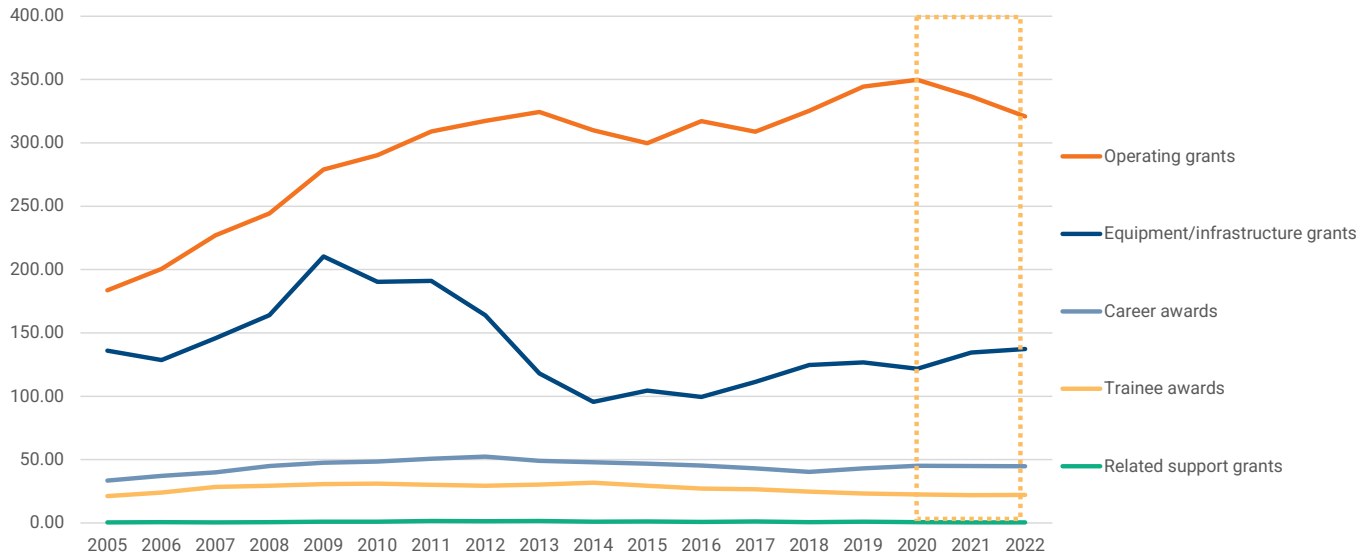
[2] Funder profiles can be accessed from the CCRA website under Tools.

[3] Figures are not inclusive of newly funded research projects established in 2020, 2021, and 2022. Therefore, these are an under-representation of Alberta Innovates actual investments in cancer research.

The next couple of figures look at the investment in terms of type of funding mechanisms. In the CCRS, funding mechanisms are grouped into five categories (see purple box below). The investment trend by mechanism is shown in Figure 3 below. While operating grants continued to form the largest portion of the investment with an upward trend since 2005, there was a notably decline in operating grant investment and an increase in equipment/infrastructure funding for years 2021 and 2022.

Figure 3

**CANCER RESEARCH INVESTMENT BY MECHANISM, 2005-2022 ($M)**




**FUNDING MECHANISMS**

**Operating grants** support all the direct costs involved in conducting specific research projects, including salaries for laboratory staff and research assistants, costs of supplies, samples, etc. The funding programs supporting these grants may be open (investigator-initiated) or focused on specific cancer sites and/or research areas (priority-driven).

**Equipment/infrastructure grants** cover the cost of new research facilities, equipment, software, databases, etc., needed for the research activities of one or more researchers.

**Career awards**, also known as salary awards and/or research chairs, provide protected time for research.

**Trainee awards** support exceptional trainees during their undergraduate, graduate, or post-graduate training.

**Related support grants** cover conference travel, workshop sponsorship as well as researcher time for proposal development.

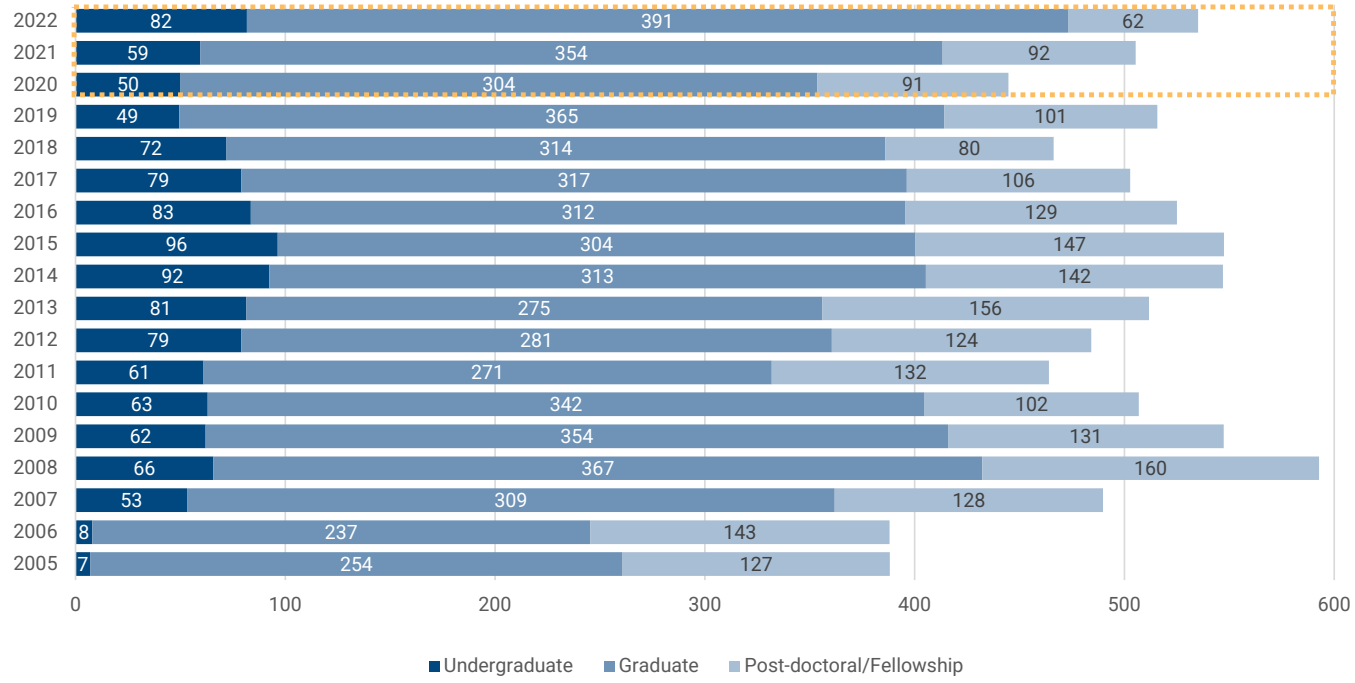
Figure 4 shows the number of projects by start year for each funding mechanism and the linear trend from 2005 to 2022. For operating grants, there was a declining number of projects over time, although a spike in 2022 that departs from the trend. For equipment/infrastructure grants as well as career awards, there was a steep decline from the early years to the most recent ones but a fairly consistent annual number from 2012-2013 to 2022. For related support grants, the years 2019 to 2022 showed a steep decline, with the pandemic undoubtedly having an impact for 2020 to 2022 when, due to public health restrictions, in-person events were not held. For trainee awards, there was a slight upward trend. Closer inspection (Figure 5) shows that the increase was due to undergraduate and graduate awards with a much lower number of cancer-relevant post-doctoral awards/fellowships granted during the years 2020-2022.

Figure 4

**CANCER-RELEVANT PROJECTS FOR EACH MECHANISM BY START YEAR (NUMBER AND TREND)**

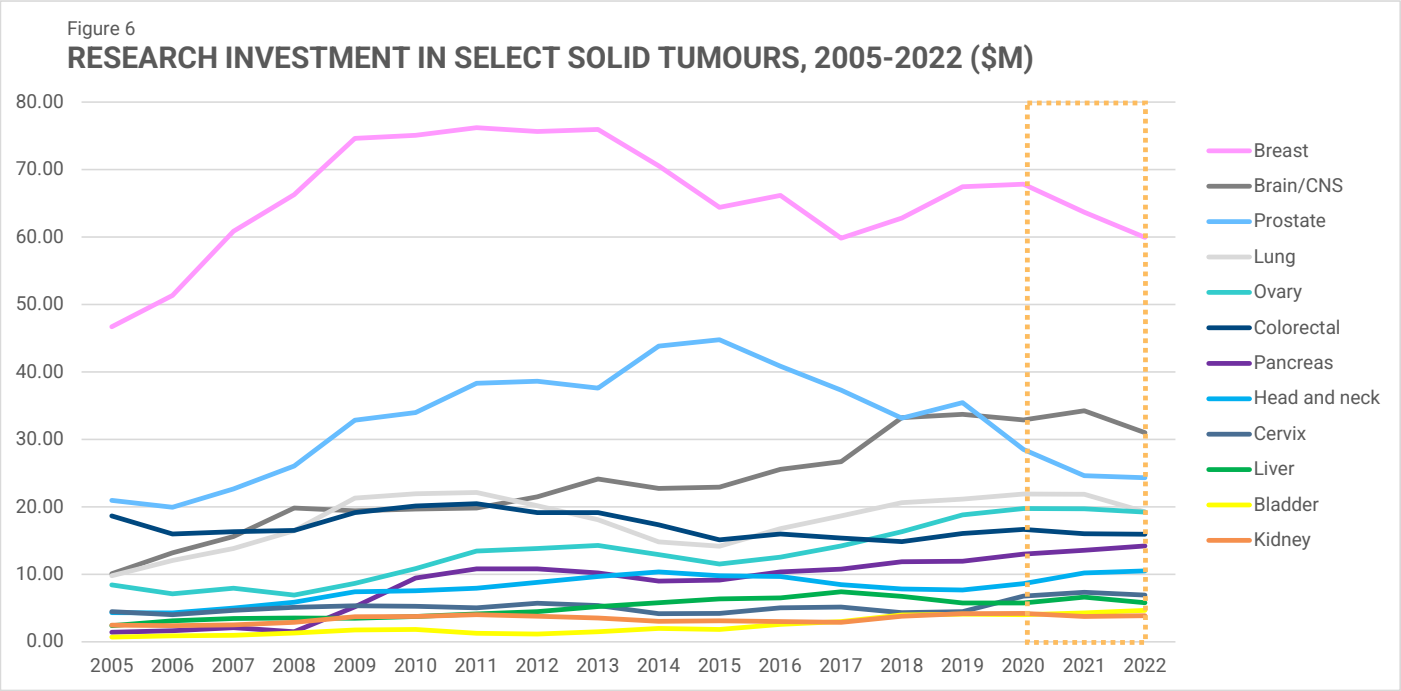
Figure 5

**CANCER RESEARCH AWARDS TO TRAINEES BY START YEAR AND LEVEL, 2005-2022 (WEIGHTED NUMBER)**




In the next series of analyses, the investment in site-specific research is examined. The focus is on cancer sites and blood cancers of broad interest. Figure 6 shows variable trends across the different solid tumour sites over time. Notable decreases were found for breast and prostate cancer in recent years, with the latter being largely the result of the lack of investment by Movember as they re-tooled their granting programs. The decreased breast cancer research investment was due to decreased funding namely by the Canadian Cancer Society, the Ontario Institute for Cancer Research, and to a lesser extent by the Natural Sciences and Engineering Research Council. The degree of decrease may also have been affected by stakeholder data not made available by the reporting deadline. The investment in brain/CNS cancers remained stable although there was a slight dip in 2022.

Figure 6



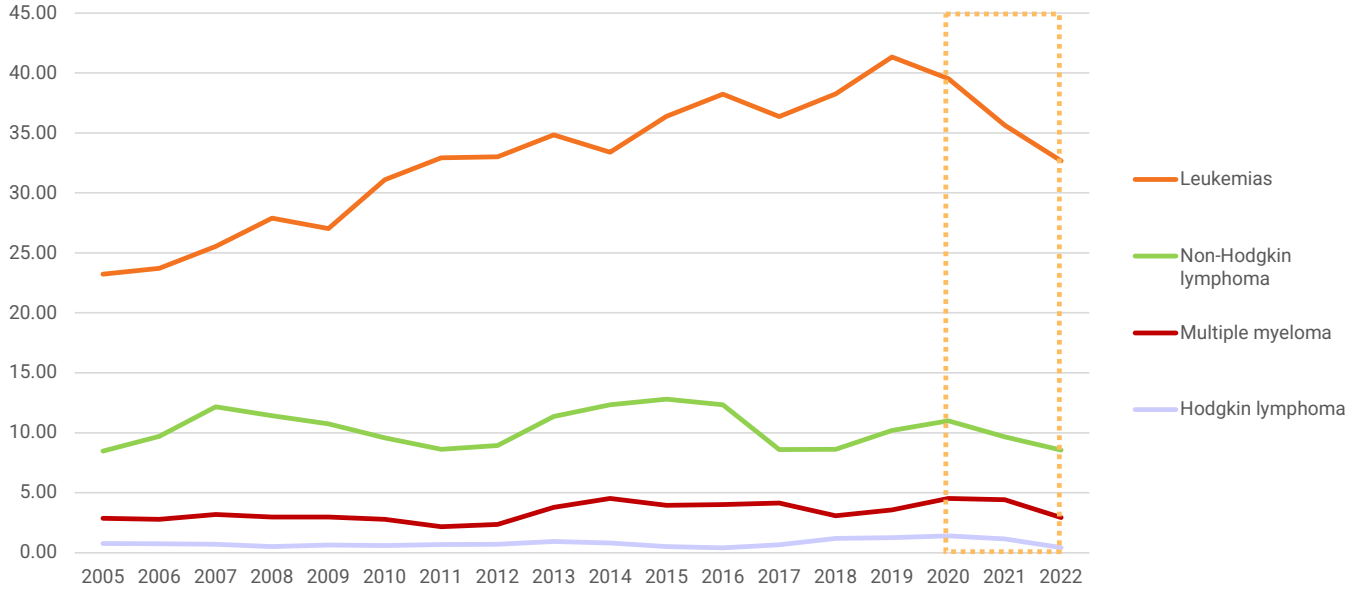

Although the breast cancer investment dropped from 2020 to 2022, the investment in metastatic breast cancer did not. To explore more, please see https://www.ccra-acrc.ca/tools/metastatic-breast-cancer-research-visualization/

Investment trends for the four major groups of blood cancers are shown in Figure 7. The research investment in blood cancers dropped in the 2020-2022 period. This was the result of a pause in research funding by the Leukemia & Lymphoma Society of Canada due to uncertainty caused by the pandemic and the natural ending of several projects relevant to blood cancers. These trends will continue to be monitored.

For details on the research investment in childhood and adolescent cancers, please go to the CCRA website at https://www.ccra-acrc.ca/tools/childhood-and-adolescent-cancers-visualization/.

Figure 7

## RESEARCH INVESTMENT IN BLOOD CANCERS, 2005-2022 ($M)

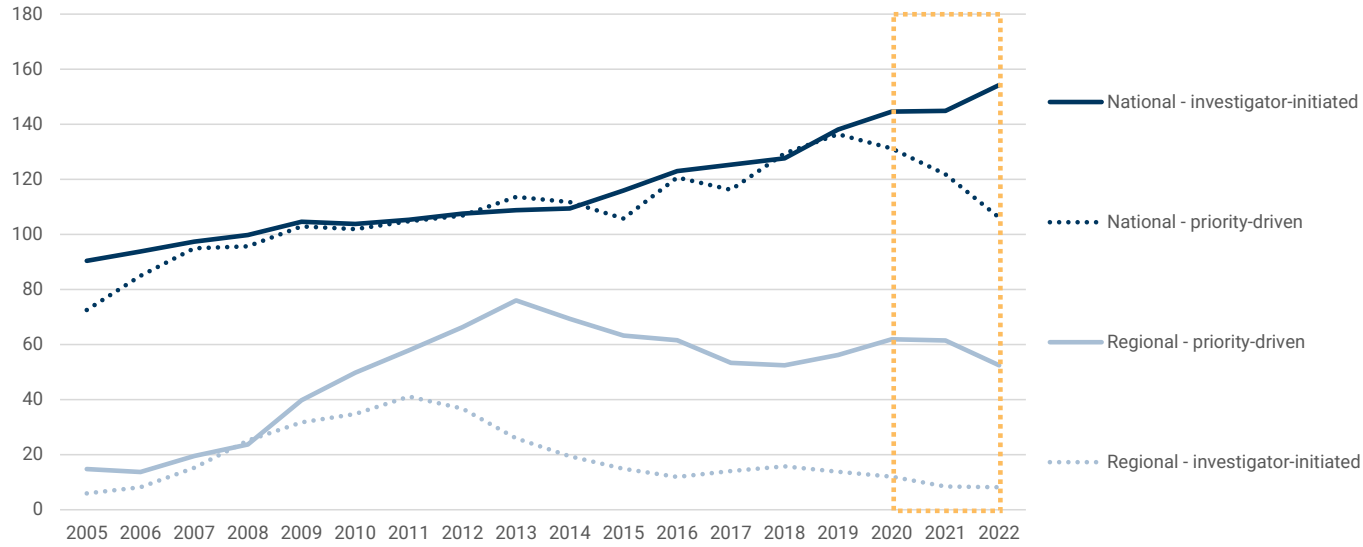


# 3 DIRECT SUPPORT TO RESEARCHERS

Over the 18 years, a total of $5.3B was invested in operating grants. The trend in investment in operating grants by funding type is provided in Figure 8. This shows growth in the national investigator-initiated investment and a sharp decline in national priority-driven investments, with regional investments declining at a lesser level. This drop in national priority-driven investments is largely attributable to the previously reported decline in funding of cancer-related projects through programs offered through Genome Canada.

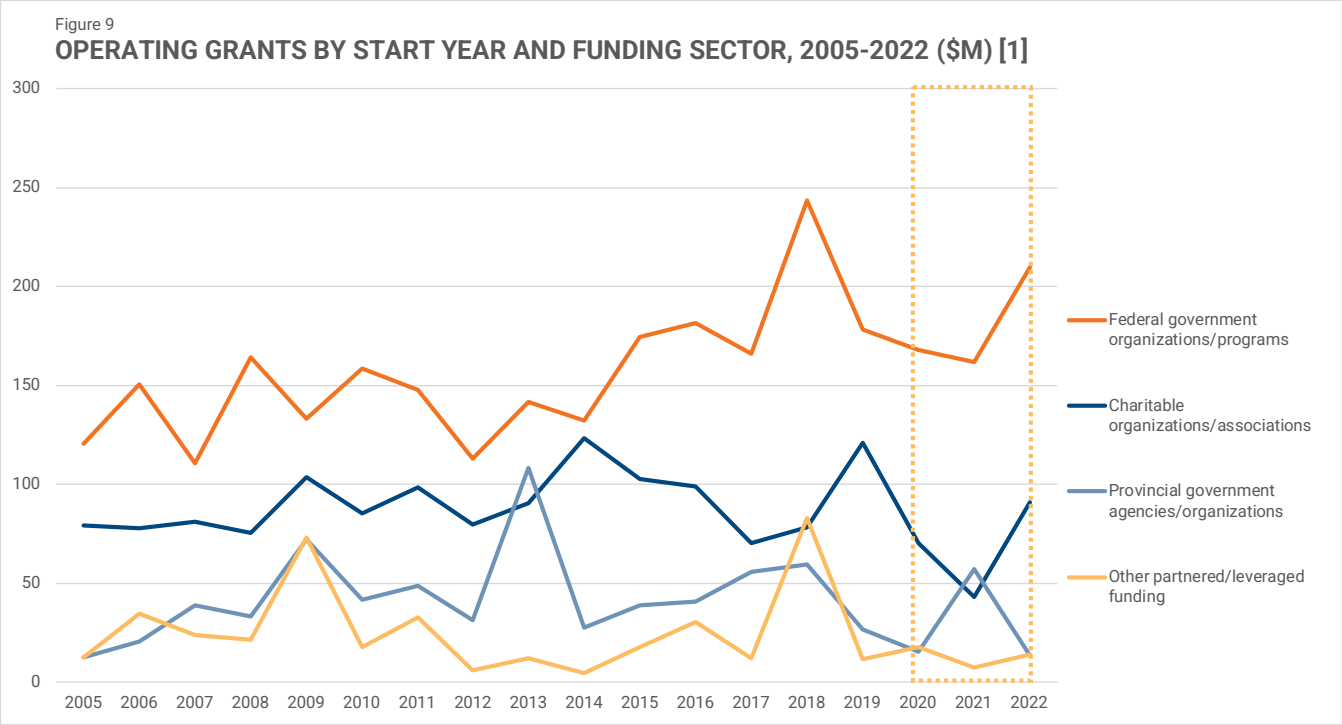
Figure 8

**INVESTMENT IN OPERATING GRANTS BY FUNDING TYPE ($M), 2005-2022**




When the total amounts of operating grants are attributed to the start year of the grant (Figure 9), there was considerable variability over the 18 years. This is due to funding cycles, time-limited competitions, reporting vagaries, and so forth across all funding sectors. To smooth out this variability, the total investments in three-year increments were compared and the percent change was computed (Figure 10). The negative percent change across all funding sectors for 2020-2022 when compared to 2017-2019 may suggest an impact of the pandemic.

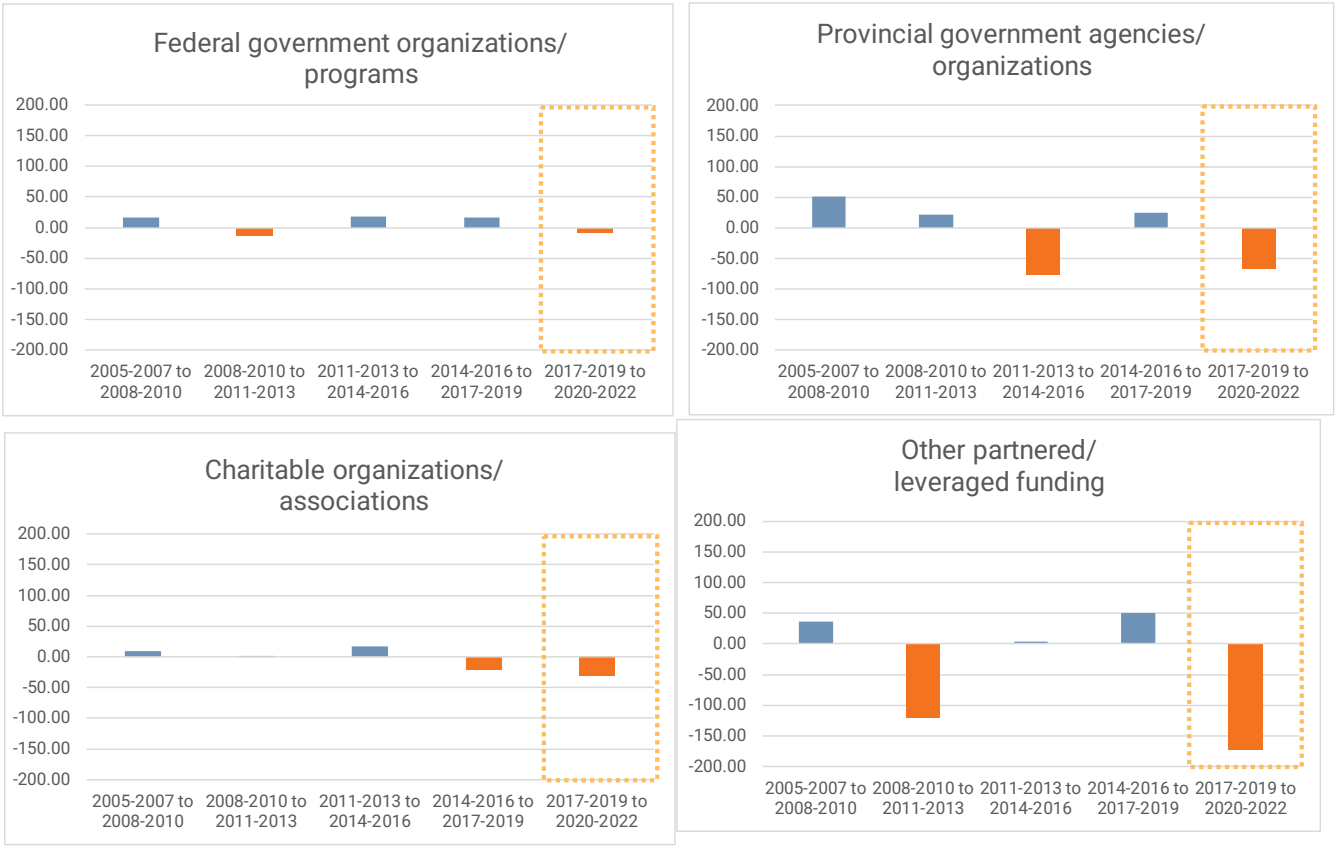
Figure 9




[1] Total grant values were attributed to the start year of the grants.

Figure 10

**OPERATING GRANTS BY START YEAR PERIOD AND FUNDING SECTORS (PERCENT CHANGE) [1]**

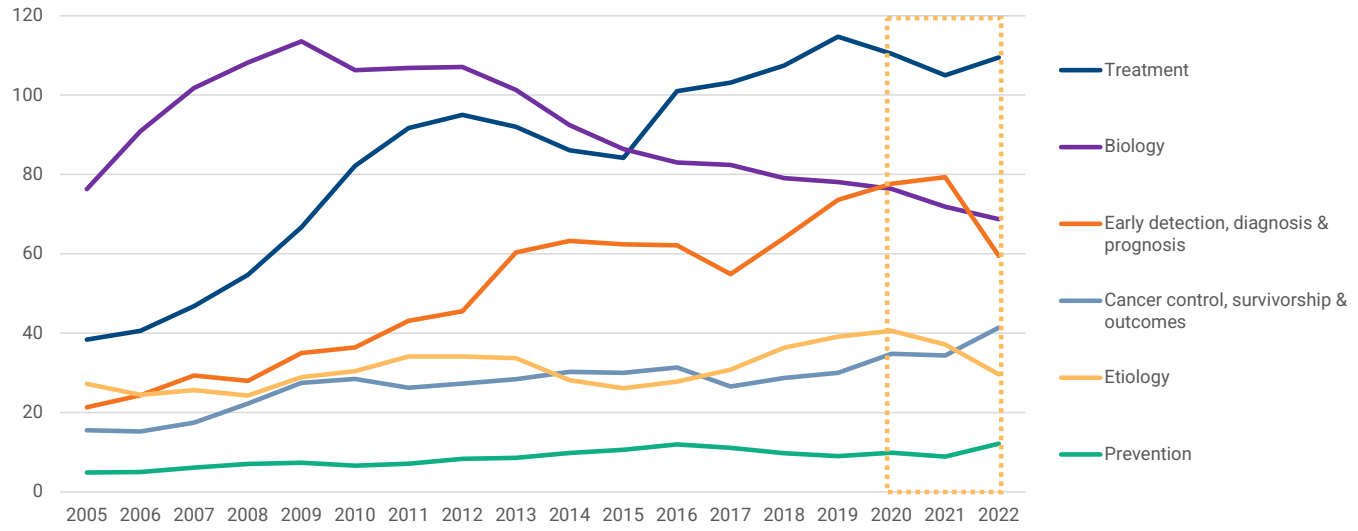



[1] Total grant amounts were attributed to the start year for this comparison and used in the calculation of the percent change between periods.

Figure 11 shows the investment trend for operating grants by categories of the Common Scientific Outline (CSO), an international standard of the six areas of cancer science (described in the purple box below). Treatment research, largely early translational, continued to represent the largest share of the investment. There was a continued decline in the investment in biology, part of a longer-term trend. The precipitous drop in research related to early detection, diagnosis & prognosis in 2022 coincided with the ending of biomarker-related projects funded through Genome Canada and to a lesser extent, The Terry Fox Research Institute. Funding for research related to cancer control, survivorship & outcomes continued its upward trajectory.

Figure 11

**INVESTMENT IN OPERATING GRANTS BY CSO CATEGORIES ($M), 2005-2022**




**SIX CATEGORIES OF THE COMMON SCIENTIFIC OUTLINE (CSO)**

■ BIOLOGY: How cancer starts and progresses as well as normal biology relevant to these processes

■ ETIOLOGY: Causes or origins of cancer—genetic, environmental, and lifestyle, and the interactions between these factors

■ PREVENTION: Individual and population-based primary prevention interventions, which reduce cancer risk by reducing exposures and increasing protective factors

■ EARLY DETECTION, DIAGNOSIS, AND PROGNOSIS: Identifying and testing cancer markers, imaging and other methods that are helpful in detecting and/or diagnosing cancer as well as predicting the outcome or chance of recurrence or to support treatment decision-making in stratified/personalized medicine

■ TREATMENT: Identifying and testing treatments administered locally (such as radiotherapy and surgery) and systemically (treatments like chemotherapy which are administered throughout the body) as well as non-traditional (complementary/alternative) treatments (such as supplements, herbs). Research into the prevention of recurrence and treatment of metastases is also included here.

■ CANCER CONTROL, SURVIVORSHIP, AND OUTCOMES RESEARCH: Includes a broad range of areas: patient care and pain management; tracking cancer cases in the population; beliefs and attitudes that affect behavior regarding cancer control; ethics; education and communication approaches for people with cancer, family/caregivers, and health care professionals; supportive and end-of-life care; and health care delivery in terms of quality and cost effectiveness.

See https://www.icrpartnership.org/cso.

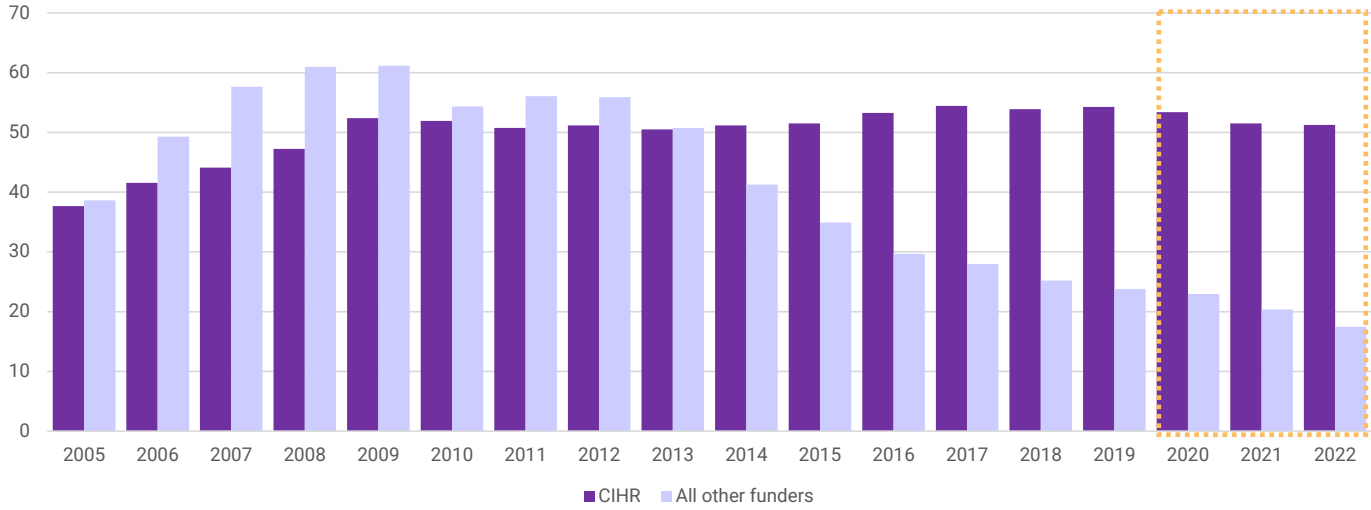
For a more in-depth look at the investment in early translational research is available at https://www.ccra-acrc.ca/tools/translational-cancer-research-visualization/.

For a look at how the investment in survivorship research has grown over time, please check out the visualization at https://www.ccra-acrc.ca/tools/cancer-survivorship-visualization/.

The support of fundamental cancer science, cancer biology, is an important part of the cancer research continuum. Notably, the CIHR has continued to be the major funding source of this research (Figure 12).

Figure 12

**INVESTMENT IN OPERATING GRANTS RELEVANT TO CANCER BIOLOGY ($M), 2005-2022**




The investment in operating grants by the province of the nominated principal investigator (PI) is detailed in Table 2. This includes investments from all funders captured in the CCRS. (Note that within the CCRS, one nominated PI is assigned per project.) The patterns were variable across provinces, with a reduction in the research dollars in 2022 to nominated PIs in Quebec.

Table 2

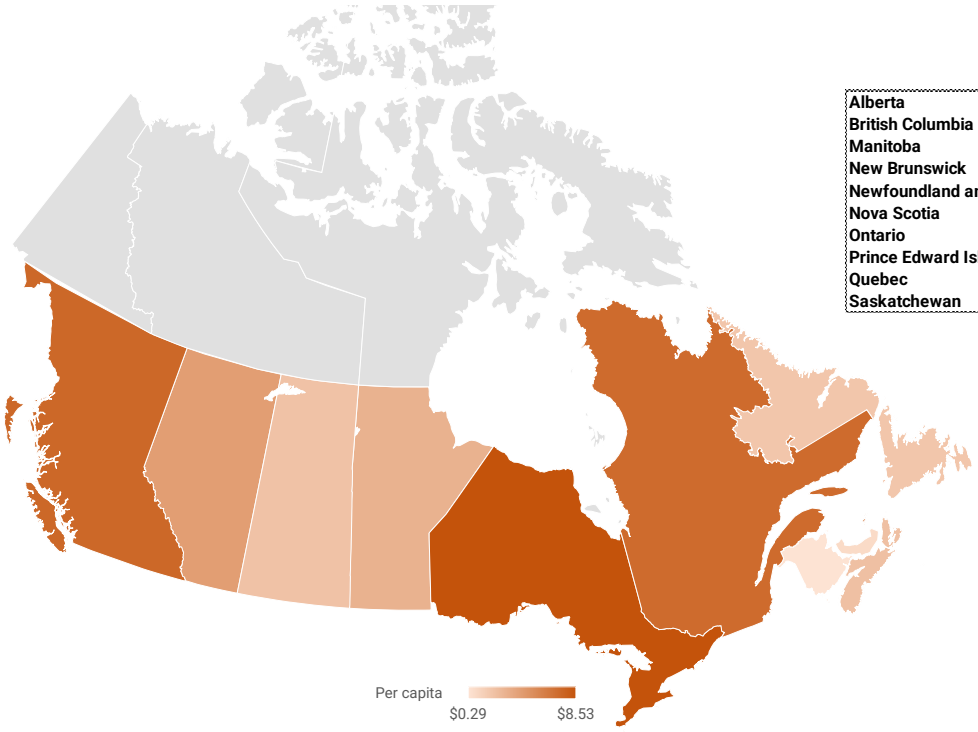
**CANCER RESEARCH INVESTMENT IN OPERATING GRANTS BY PROVINCE OF NOMINATED PI, 2005-2022 ($M)**

| Year | Alberta | British Columbia | Manitoba | New Brunswick | Newfoundland and Labrador | Nova Scotia | Ontario | Prince Edward Island | Quebec | Saskatchewan |
|---|---|---|---|---|---|---|---|---|---|---|
| 2005 | 33.91 | 48.41 | 8.10 | 0.12 | 0.98 | 3.76 | 175.36 | 0.11 | 96.76 | 5.00 |
| 2006 | 36.23 | 45.09 | 8.15 | 0.23 | 0.76 | 4.88 | 190.68 | 0.10 | 96.57 | 4.77 |
| 2007 | 41.79 | 52.16 | 9.05 | 1.96 | 1.40 | 5.70 | 211.63 | 0.17 | 109.62 | 4.57 |
| 2008 | 49.63 | 58.54 | 8.63 | 2.01 | 1.51 | 8.87 | 231.54 | 0.30 | 114.37 | 4.38 |
| 2009 | 48.45 | 64.52 | 9.28 | 2.17 | 2.06 | 7.79 | 295.34 | 0.22 | 131.71 | 3.91 |
| 2010 | 46.17 | 63.80 | 10.51 | 1.17 | 1.93 | 7.72 | 298.86 | 0.18 | 124.58 | 3.77 |
| 2011 | 49.75 | 62.77 | 10.43 | 1.16 | 1.85 | 8.41 | 324.06 | 0.18 | 117.48 | 3.86 |
| 2012 | 46.07 | 61.55 | 9.36 | 1.79 | 1.62 | 8.75 | 314.20 | 0.17 | 114.84 | 3.67 |
| 2013 | 52.17 | 62.90 | 9.52 | 2.32 | 1.59 | 7.53 | 265.76 | 0.12 | 114.60 | 3.97 |
| 2014 | 56.41 | 61.73 | 9.85 | 1.47 | 1.31 | 6.73 | 228.49 | 0.12 | 112.47 | 4.41 |
| 2015 | 46.76 | 62.81 | 9.87 | 1.22 | 1.18 | 6.72 | 233.94 | 0.04 | 112.16 | 3.59 |
| 2016 | 44.29 | 63.63 | 7.22 | 1.91 | 0.86 | 6.52 | 249.21 | 0.00 | 110.55 | 3.18 |
| 2017 | 35.82 | 64.62 | 7.71 | 3.11 | 0.85 | 6.79 | 261.46 | 0.00 | 104.35 | 3.88 |
| 2018 | 27.23 | 71.07 | 8.53 | 3.13 | 1.05 | 5.56 | 279.00 | 0.02 | 113.29 | 4.59 |
| 2019 | 29.92 | 76.69 | 9.21 | 2.26 | 1.32 | 5.12 | 277.73 | 0.03 | 129.44 | 5.00 |
| 2020 | 35.43 | 80.08 | 10.44 | 1.96 | 1.26 | 4.86 | 265.57 | 0.02 | 133.06 | 5.33 |
| 2021 | 34.86 | 81.60 | 12.20 | 1.97 | 1.75 | 7.67 | 259.87 | 0.12 | 131.19 | 5.68 |
| 2022 | 38.91 | 72.88 | 15.96 | 1.29 | 1.79 | 8.16 | 261.32 | 0.25 | 117.14 | 6.44 |

Figure 13 below shows the investment in nationally available operating grants standardized by provincial population for the year 2022. While provincial population is a crude denominator, it does help to remove some of the population size differences. As per previous reports, the most populous provinces continued to receive most of the cancer research dollars available through national research funding competitions.

Figure 13

**PER CAPITA INVESTMENT IN CANCER RESEARCH FOR NATIONAL OPERATING GRANTS BY PROVINCE OF NOMINATED PI, 2022**



# 4 CONCLUSION

This report describes the investment in cancer research in Canada for the period 2005 to 2022. There were some notable trends and observable impacts of the COVID-19 pandemic (particularly when looking at the total commitments to operating grants in the 2020-2022 period).

The uptake in commitments and investments particularly by Federal government organizations and programs and charitable organizations/associations in 2022 is a testament to the multi-pronged actions taken by many CCRA members and other research funders to mitigate the impacts of the pandemic. That is, funders quickly recognized the threats to research funding and responded in the following ways:

- sustained their commitments to and levels of funding for cancer research
- provided no-cost extensions to in-progress research projects
- temporarily extended the eligibility of early career researcher opportunities from five to seven years from the date of their first research-related appointment
- supported the pivot to a virtual Canadian Cancer Research Conference for 2021 as a mechanism to continue to keep the research community connected
- developed/expanded co-designed trainee opportunities, including programs to build capacity among equity-denied groups
- increased stipends provided to trainees to address financial precarity
- developed targeted funding programs to address system inequities
- continued to support researchers with career awards/salary support
- expanded funding partnerships with other organizations
- spurred investments in data systems and data infrastructure
- offered funding opportunities to address the impacts of COVID on the cancer system

It is possible that there were impacts of the pandemic on other funding-related variables (e.g., application rates, PI gender, etc.) but these are not tracked as part of the CCRS. On this last point, from 2020 to 2022, 36 projects related to COVID and cancer were started in addition to three projects related to the COV-IMMUNO clinical trial, which tested an investigational drug, IMM-101 for its ability to reduce serious infections and COVID-related infections in cancer patients. Combined, these projects represented for $8.5M in funding, with most of this investment coming from CIHR.

In forthcoming reports, the trends in the cancer investment will continue to be tracked with an eye to identifying possible lingering effects of the pandemic.

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