

FUNDING FOR DISCOVERY RESEARCH



Fuels innovation

Discovery research creates the knowledge and the expertise necessary for Canadians to make important societal and technological advances. Combining scientific rigour with curiosity about how things work and why they happen, Canada's university researchers have built the foundation for our nation's strategic sectors, including advanced manufacturing, agri-food, clean technology, health/biosciences, and artificial intelligence (AI).

- **Artificial intelligence (AI):** Until recently, people viewed AI as science fiction – a completely impractical field. But early research by Canadian scientists in machine learning, funded by the granting councils, turned AI into a disruptive technology, and gave us the knowledge and the highly skilled talent to attract major companies.
- **Ebola and Zika vaccines:** Canadian researchers were quickly able to develop vaccines for these emerging threats because of the understanding of the virus stemming from curiosity-driven research.
- **The world's first antiretroviral drug for HIV:** Lamivudine, or 3TC, came about from the early work of McGill chemistry professor Bernard Belleau on sugar derivatives. Belleau teamed up with Dr. Gervais Dionne and Francesco Bellini to form BioChem Pharma, which commercialized 3TC. The drug is estimated to have saved approximately 2 million lives.



Makes us globally competitive for talent

With insularity on the rise internationally, Canada's reputation as an open, welcoming nation gives us an opportunity to attract global research talent. But to succeed, Canada needs a competitive funding environment for research. While the rhetoric about cuts to research coming out of the White House is disconcerting, the fact remains that the U.S. Congress continues to increase research funding, widening the gap between Canada and the U.S.

	US National Institutes of Health (NIH)	Canadian Institutes of Health Research (CIHR)
Total Budget FY18	\$35.2 billion*	\$1.1 billion
Average increase (FY16-FY18)	4.4% / year	1.4% / year
\$ per capita each year	\$110 / inhabitant	\$30 / inhabitant

*Proposed

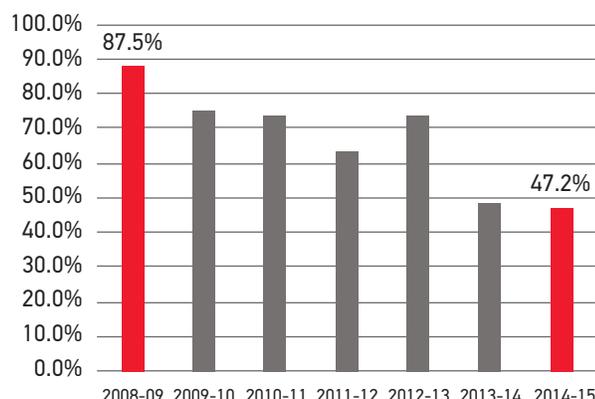


Retains top researchers

In the early 2000s, Canada reversed its brain drain — not only because of programs such as the Canada Research Chairs (CRCs) but also because its success rates for obtaining research grants were competitive internationally. Now the people we have attracted and those we want to retain are scrambling for funding.

- Less than 50% of CRCs – Canada's best researchers – have an operating grant to do their research
- 87.5% of early-career CRCs in the domain of health received CIHR funding in 2008-09
- 47.2% of them received CIHR funding in 2014-15

Proportion of Early-Career CRCs Receiving CIHR Funding as Principal Investigators



Source: Alain Beaudet, Presentation to the Academic Health Sciences Network Symposium, 2016

FUNDING FOR DISCOVERY RESEARCH



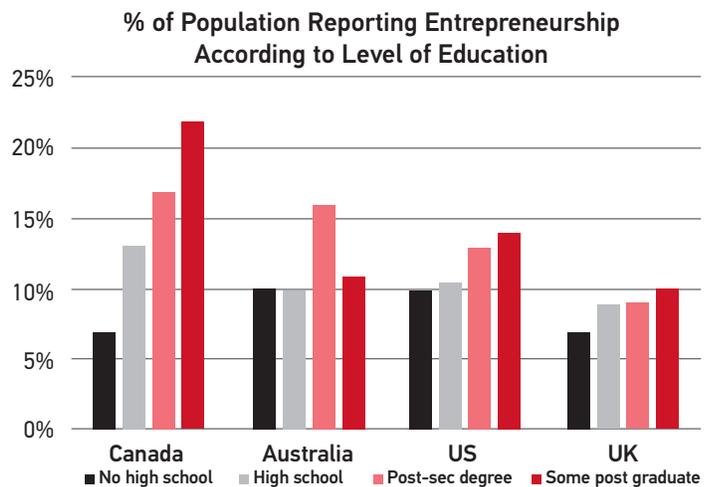
Trains Canada's most productive workers

Fundamental research plays an essential role in training Canada's most productive and skilled workforce.

- Up to 50% of research operating grants support salaries of graduate students and postdoctoral fellows. This funding allows the next generation of innovators to collaborate with top professors and become the experts Canada needs for the 21st-century economy
- The entrepreneurship rate of graduate-degree holders in Canada, most of whom have conducted research, is more than three times the rate of Canadians without a high-school education

*"In Canada, those **with the highest level of educational attainment** are **more likely to be employed**, are **more productive**, and **earn higher wages**. Furthermore, educated workers are **more adaptable** in a changing economy, they **drive innovation**, and are necessary to **attract high value-added industries** to the region."*

Institute for Competitiveness and Prosperity,
Looking Beyond GDP, Toronto, 2016, p. 20



Advances gender equity

A greater proportion of early career researchers are women. Because the decrease in funding for discovery research hits young researchers hardest, women are therefore disproportionately affected.

- 40.2% of full-time academic teaching staff are women, yet
- 20% of NSERC Discovery Grants holders are women
- 2% of Discovery Grant holders are women under 36 years of age

Strengthening Canada's research ecosystem and research universities is a winning proposition for all Canadians. The time to act is now.