Canadian Society for Molecular Biosciences

Promoting and advancing molecular understanding of biology

Written submission to the House of Commons Science and Research committee study: *Government of Canada's Graduate Scholarship and Post-Doctoral Fellowship Programs*

Overview

Alongside a number of stakeholders within Canada's scientific community, the Canadian Society for Molecular Biosciences is drawing attention to the need for enhanced and sustained federal investments in science and discovery research. This will ensure Canada is well positioned to attract, retain and support the scientists, and aspiring scientists, who are choosing to pursue their groundbreaking research in Canada, rather than competing jurisdictions internationally, as well as those who are aspiring to pursue professions outside of research.

Through immense cross-disciplinary collaboration and a spirit of scientific ingenuity, Canada's scientific community, including CSMB, has risen to many significant challenges, most recently through involvement with mRNA vaccine development. This is a testament to Canadian scientific know-how and the dedication of our community to the advancement of science and the betterment of society in Canada.

Aspiring leading scientific researchers in Canada are profoundly motivated by impactful contributions such as these. However, enticing researchers to pursue their studies and careers in Canada has become increasingly challenging. The lack of reliable, transparent and predictable research funding and student support in comparison to related global jurisdictions, and in particular professions outside of research, has become a significant obstacle that requires urgent attention.

The lack of dependable support for the next generation science talent pipeline, leading to a shortage of skills, is problematic for a sector that is so dependent on highly qualified personnel. Ongoing and sustained increases in the amount of grant funding available for basic science researchers is crucial to ensuring that our best and brightest will enter science and discovery research, and that they continue to perform research rather than to seek more compelling opportunities elsewhere, leading to "brain drain" both from the sector and from Canada.

The Urgent Need to Increase Support for Scientific Research and Training: An Investment in our Long-Term Future

Momentous change has been the biggest constant of the 21st century, from adapting to the changes in climate patterns globally, to meeting the challenges posed by pandemic outbreaks – crisis preparedness is critical. Scientists must be well positioned to deploy innovation and precision medicine quickly and at scale.

Canada's allies and competitors for talent have taken note of these changes, challenges and emerging science policy realities. President Biden's first budget request to Congress, for instance, reflected his administration's bold and ambitious science and research agenda, including funding to expand education and workforce training programs and support next-generation science talent. To illustrate this, the budget of the Canadian Institutes of Health Research (CIHR) in 2022 was a mere 2.38% compared with the budget of the United States National Institutes of Health (NIH) budget. Given that the US population is 8.7 times that of Canada, they invest 5 to 6 times as much in biomedical research per capita, compared to us. The United States is only one of several countries that has identified science and research as a way to deal with global challenges and has matched this with adequate funding.

Biomedical research funding in Canada is supported via the following structures:

1- Operating grants through tri-councils that fund student stipends
2- Fellowships awarded through CIHR / NSERC
3- Research Support Fund to offset the costs of overhead

The current level of operational support at the tri-councils is insufficient to support Canadian researchers at internationally competitive rates. The erosion of the funding base has been slowly forcing many promising biomedical research laboratories across the country to reduce their research efforts or close entire research programs, release highly trained personnel, and stop training the next generation of scientists, a perspective that discourages new talent to enter the research and training pipeline. This fundamentally threatens our preparedness for a future public health crisis, as basic science training is foundational to so many aspects of public health, medicine and biomedical research into therapies.

CSMB recommends that the Government of Canada increase tri-council budgets by a minimum of 10% per year over the next 5 years.

This is in alignment with the recommendations presented by the Advisory Panel on the Federal Research Support System, released in March 2023 (The Bouchard Report). This investment would address the steady decline in research funding in Canada thereby positioning Canada to innovate and discover on the global stage, promote greater international collaboration, create interdisciplinary opportunities, and lead to high-risk ventures that will ensure Canada is ready to face the next global challenges ahead, health or otherwise. This investment would also acknowledge that tri-council operating grants fund a wide range of highly qualified personnel

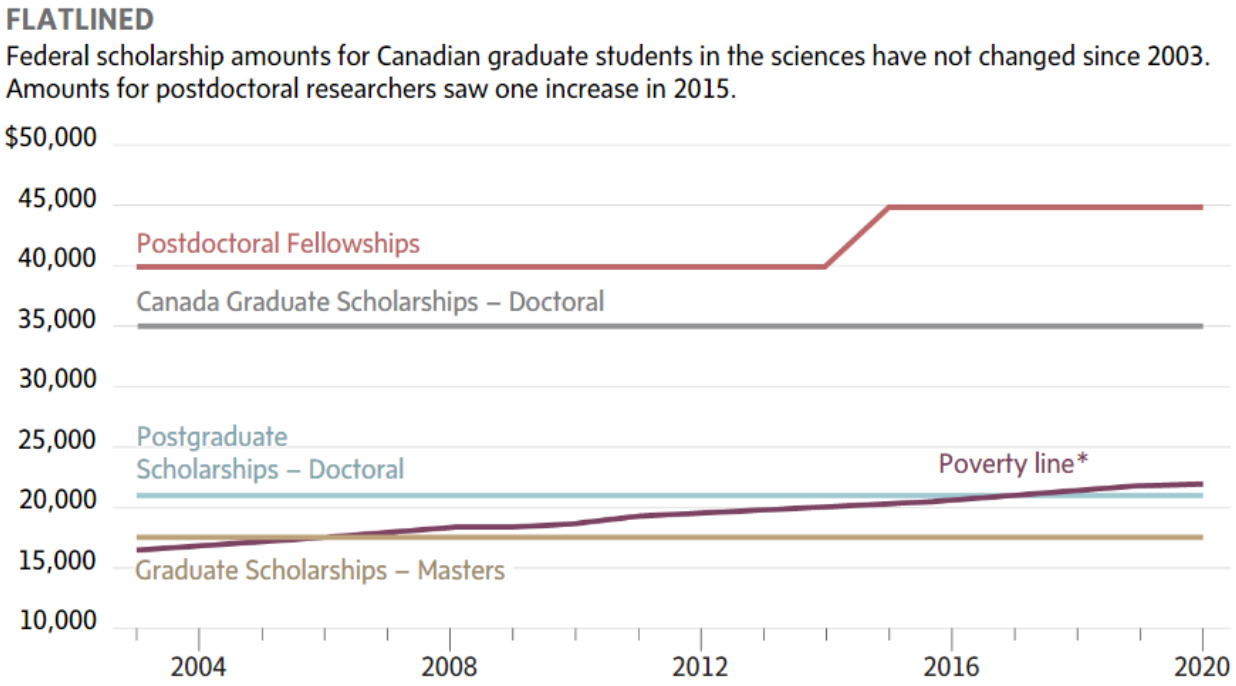
and trainees that are not captured by other investments. These are critical to retain expertise and enable sustained innovation and discovery.

In addition, as Canada looks towards making our economy more innovative and productive, it remains vital that any government strategy retain a strong focus on the significant hurdles faced by our science and research sector: a lack of support for next generation science talent, leading to a skills shortage, which is problematic for a sector that relies on a highly skilled workforce.

It is important that Canada uplifts and supports our next generation of science talent. Unfortunately, stagnant funding in Canada is making it difficult to demonstrate the value and opportunities in science to our young people.

Government financial support for science and research is primarily made through investments in infrastructure, such as for university-based laboratories, in addition to grant funding for researchers through the tri-councils (CIHR, NSERC, SSHRC) which graduate students rely heavily on. Ongoing and sustained increases in the amount of grant funding available for basic science researchers is crucial to ensuring that our best and brightest can continue to perform research, and that they do not seek more compelling opportunities elsewhere.

Today, scholarship amounts are not increasing with inflation – and in fact, amounts have not increased since the early 2000's. For example, during the 2021-2022 fiscal year, Master level students were eligible for a one-time scholarship of $17,500, while the poverty line for a single individual living in an urban area with a population greater than 500,000 was $22,060. To further conceptualize, the median Canadian individual income in 2023 is $61,640 according to Statistics Canada.



At the same time, the competition for grants and funding is highly competitive. For example, from the CIHR's Fall 2022 project grant results, of the 511 applications submitted by early career researchers, only 20.2% of applications were funded. Of the 657 mid-career applications submitted by mid-career investigators, only 18.1% of applications were funded. These low success rates mean that many of Canada's researchers spend hours writing grant applications, in addition to their research output which on average far exceeds 40 hours per week, yet many of their grant applications are unsuccessful.

The science and research sector is, like many other sectors, competing for talent. Faced with low success rates for funding support, as well as a perception that Canadian scientists and researchers do not have access to a livable wage, our current cohort of talent may be leaving the field, not because they don't love it, but because they can't afford to stay in it. At the same time, opportunities within the sector abroad are more attractive than those offered domestically, leading to instances of "brain drain".

With this in mind, and in in the spirit of the Bouchard Report, **the CSMB recommends that the Government of Canada increase the level of support for recipients of the Canada Graduate Scholarship (Master's program) and Postgraduate Scholarship (Doctoral program), bringing funding to an internationally competitive level.**

*Conceived in 1957, the **Canadian Society for Molecular Biosciences (CSMB)** is a professional association of scientists involved in Biochemistry, Cell Biology, Molecular Biology and Genetics. Our members are primarily from universities and academic research institutions from across the country and are the scientists responsible for investigator-driven research. Their work generates new knowledge that fuels innovation and discoveries, and trains the next generation of scientists who will continue to innovate and contribute to our knowledge-based economy through academic, industry, and business opportunities.*