

September 6, 2016

To The Honourable Kirsty Duncan, Dr. David Naylor, and members of the panel:

Please accept this submission to Canada's fundamental science review on behalf of the Postdoctoral Association at Western (PAW). Postdoctoral researchers are a vital and integral part of scientific research in Canada. Unfortunately, poorly-defined employment classification, terms and responsibilities has rendered postdocs a singularly vulnerable population within the science community in Canada. In the following letter, we have outlined several key areas of difficulty for postdoctoral researchers in Canada and offer some ideas and suggestions to strengthen Canadian research through empowering postdocs.

Sincerely,

The Postdoctoral Association at Western

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Providing Fair and Equitable Rates of Pay for Postdoctoral Researchers

According to the 2013 Canadian Postdoc survey conducted by the Canadian Association of Postdoctoral Scholars, approximately two-thirds of Canadian postdocs make less than \$45000 annually and only 44% of postdocs are satisfied with their salary¹. Additionally, there is a large discrepancy in postdoc salaries, reportedly ranging from less than \$25000 to greater than \$80000 annually¹. This drastic discrepancy in pay and lack of satisfaction with income supports a critical need to for a standardized pay scale as well as a set minimum salary for postdoctoral fellows in Canada. In the United States, postdoc pay is standardized by the National Institute of Health (NIH), and the minimum salary for new postdoctoral scholars in the United States is currently \$43692, and postdocs receive a 4% raise annually². The Tri Council should follow the lead of the NIH to publish a similar document for Canadian postdocs, to ensure all postdocs in Canada are compensated appropriately for their work, regardless of whether they are funded by a Tri Council fellowship. Recently, in the United States, the Fair Labor Standards Act implemented a new overtime rule stating that all employees earning less than \$47476 annually be awarded overtime pay³. In response to this, the NIH will be raising the salaries of postdocs paid through NIH or NRSA fellowships to exceed this minimum overtime pay requirement^{4, 5}. Furthermore, according to the 2013 Life Sciences Salary Survey, the United States is still behind Europe in postdoc pay, as the average European postdoc salary was \$55000 US annually in 2013⁶. Thus, it is imperative that Canada step up to the plate to compensate its postdoctoral scholars so the country can continue to attract, and retain, the best and brightest scientific minds to drive our fundamental scientific research forward.

Empowering Canadian Postdoctoral Researchers through Independent Funding Opportunities

Independence is often a highly valued asset in securing tenure-track academic positions, however it is ambiguously defined and difficult to measure. Furthermore, there are no national funding programs for postdoctoral fellows themselves to obtain funds for independent research and Canada lags behind other nations in this regard. The U.S. National Institutes of Health (NIH) offer several options for postdoc-held independent grants including the R03 grant mechanism to support small research projects for up to 2 years with or without preliminary data⁷. The NIH Pathway to Independence Award (K99/R00) provides postdocs a salary and research funds for a “mentored phase” (K99) of 2 years followed by a 3 year “independent phase” (R00) upon recruitment into an independent faculty position⁸. This program not only facilitates a timely transition from mentored postdoctoral research into independent faculty positions, but also increases a candidate’s competitiveness by providing independent NIH research support during the transition. Several other international foundations also provide independent grants for postdoctoral researchers including the National Science Foundation⁹, the Whitehead Institute¹⁰, the European Commission¹¹, the European Research Council¹², the UK’s Biotechnology and Biological Sciences Research Council¹³, the Science Foundation Ireland¹⁴, the German Research Foundation¹⁵, EMBO¹⁶, the Max Planck Society¹⁷, and the French National Research Agency¹⁸. Development of a funding program to foster postdoctoral independence in Canada will enable our trainees to compete on the world stage. We understand that creating an entirely new grant program requires money and other resources, however there may be several options to expedite the process. Opening up applications of existing Tri Council early career grants, such as the various CIHR early career and new investigator awards^{19, 20, 21}, currently available to researchers with less than five years independence may be the most straight-forward. Alternatively, this type of competition could replace, or be built into an existing postdoc-centered fellowship such as Banting²².

Accurate Tracking and Public Disclosure of Postdoctoral Researchers in Canada

The only publically available comprehensive account of the numbers, disciplines and salaries of postdoctoral researchers in Canada comes from the Canadian Association of Postdoctoral Scholars (CAPS/MITACS) 2013 Canadian postdoc survey¹. Institutions are required to submit an annual *Grants in Aid of Research Statement of Account* to the Agency for every Tri Council grant of the fiscal year, which is to include salaries or stipends paid to research personnel, including names, categories, salary levels, affiliation to the grant; length of time supported in each case; and details of employee benefits charged and relevant calculations²³⁻²⁵. However, transparency surrounding the numbers, funding status and future employment probability of postdoctoral scholars in Canada is lacking under the current Tri Council reporting processes and current and future postdoctoral researchers in Canada would benefit from accurate and detailed publication including the number, salaries and number of years of support provided to postdoctoral researchers by all Tri Council grants. Such reporting from the three largest federal funding agencies would be much farther reaching, more complete and unbiased than any current reporting generated from individual academic institutions.

Strengthening Scientific Output in Canada through Redistribution of Labour

Currently, the bulk of primary academic research (bench work) in Canada is performed by trainees—either graduate students or postdoctoral researchers—while experienced researchers write grants.

Furthermore, in many labs, the number of trainees far exceeds the number of permanent professional research staff, which limits the monitoring of research projects for scientific rigour. Academic research job openings, however, are disproportionately few, resulting in a cohort of specialized, skilled workers with uncertain career prospects many years into their training¹. This unsustainable research hierarchy may be slowly remedied through the implementation of funding for permanent or semi-permanent research staff positions. It has been shown that quality, but not quantity, of research output increases with the presence of non-trainee research staff²⁶. Additionally, graduate and postdoctoral training should balance between academic to non-academic jobs in related sectors. This is necessarily a collaborative effort between the universities and funders. For their part, federal funding agencies must incentivize the transition of graduates to non-academic careers by more highly valuing the translation of human capital on grant applications. In order to develop a robust scientific ecosystem, it is imperative to consider the people who work in, and around, academic research. Where Canada is falling behind is not in the training of qualified scientists but in funding professional research positions, and in effectively translating scientists into related industries. Ultimately, it will be our ability to retain these people in Canada that impacts the bottom line of Canadian science.

References

¹Mitchell et al. (2013) "The 2013 Canadian postdoc survey: painting a picture of Canadian postdoctoral scholars" *CAPS/Mitacs*.

https://www.mitacs.ca/sites/default/files/caps-mitacs_postdoc_report-full_oct2013-final.pdf

²<http://grants.nih.gov/grants/guide/notice-files/NOT-OD-16-131.html>

³<https://www.dol.gov/whd/overtime/final2016/>

⁴http://www.huffingtonpost.com/francis-s-collins-md-phd/fair-pay-for-postdocs-why_b_10011066.html

⁵<http://www.sciencemag.org/careers/2016/05/postdoc-pay-increase-due-new-overtime-rule>

⁶<http://www.the-scientist.com/?articles.view/articleNo/38033/title/2013-Life-Sciences-Salary-Survey/>

⁷<http://grants.nih.gov/grants/funding/r03.htm>

⁸<http://www.nhlbi.nih.gov/research/training/programs/postdoc/p/athway-parent-k99-r00>

⁹http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5291&org=NSF

¹⁰<http://wi.mit.edu/people/fellows>

¹¹<http://ec.europa.eu/research/mariecurieactions/>

¹²<https://erc.europa.eu/funding-and-grants/funding-schemes/starting-grants>

¹³<http://www.bbsrc.ac.uk/funding/filter/future-leader-fellowship/>

¹⁴<http://www.sfi.ie/funding/funding-calls/open-calls/sfi-erc-resubmission-incentivisation-programme/royal-society->

[%E2%80%93-science-foundation-ireland-university-research-fellowship.html](http://www.sfi.ie/funding/funding-calls/open-calls/sfi-erc-resubmission-incentivisation-programme/royal-society-%E2%80%93-science-foundation-ireland-university-research-fellowship.html)

¹⁵http://www.dfg.de/en/research_funding/programmes/individual/research_grants/index.html

¹⁶<http://www.embo.org/funding-awards/fellowships>

¹⁷<https://www.mpg.de/career/max-planck-research-groups>

¹⁸http://www.agence-nationale-recherche.fr/fileadmin/user_upload/documents/uploaded/2008/programmation-2009.pdf

¹⁹<https://www.researchnet-recherchenet.ca/rnr16/vwOpprntntyDtIs.do?prog=2493&view=currentOpps&org=CiHR&type=EXACT&resultCount=25&sort=program&all=1&masterList=true>

²⁰<http://www.cihr-irsc.gc.ca/e/44181.html>

²¹<http://www.cihr-irsc.gc.ca/e/45267.html>

²²<http://banting.fellowships-bourses.gc.ca/en/home-accueil.html>

²³http://www.nserc-crsng.gc.ca/Professors-Professeurs/FinancialAdminGuide-GuideAdminFinancier/Reporting-Rapports_eng.asp

²⁴<http://www.cihr-irsc.gc.ca/e/797.html>

²⁵http://www.sshrc-crsh.gc.ca/funding-financement/using-utiliser/grant_regulations-reglement_subventions/pdfs/statement300_e.pdf

²⁶Conti and Liu. (2015) "Bringing the lab back in: Personnel composition and scientific output at the MIT Department of Biology" *Research Policy*, 44:9.