




### Supporting Science as a Global Good in Crisis

James Shaw  <sup>\*1</sup>, Abril Saldaña-Tejeda  <sup>2</sup>, Leo Anthony Celi  <sup>3</sup>.

<sup>1</sup>Joint Centre for Bioethics, Dalla Lana School of Public Health. Department of Physical Therapy, Temerty Faculty of Medicine. University of Toronto. 500 University Avenue M5G 1V7. Toronto, Canada.

<sup>2</sup> Department of Philosophy . Universidad de Guanajuato; Guanajuato, Mexico.

<sup>3</sup> Laboratory for Computational Physiology, Massachusetts Institute of Technology; Cambridge, USA. Division of Pulmonary, Critical Care and Sleep Medicine, Beth Israel Deaconess Medical Center; Boston, USA.

\*Corresponding author. [Jay.shaw@utoronto.ca](mailto:Jay.shaw@utoronto.ca). T: 416-978-0315



Science is under attack. The attack is not new, but it has been escalated significantly by a recent policy implemented by an Executive Order of the President of the United States. Since taking office on January 20<sup>th</sup>, 2025, President Trump has implemented divestments from (a) the domestic funding of empirical and theoretical research <sup>1</sup>, (b) diversity, equity, and inclusion in research and academia <sup>2</sup>, and (c) international collaborative science, including public health and climate surveillance <sup>3</sup>. Beyond these divestments, the President has also produced a chaotic international trade war, initiated first upon the United States' closest neighbors and partners in trade: Mexico and Canada. The impact of this trade war, now expanded to the United States' other trade partners internationally, further jeopardizes science as a collaborative global endeavor that depends upon relationships between scientists around the world.

In this Viewpoint we make a call to the global scientific community as researchers situated in Mexico, Canada, and the United States: Despite the emergence of protectionist animosity especially toward the United States, it is fundamental that we continue to collaborate internationally in ways that support health and medical science as a diverse, democratic global effort to produce health and wellbeing for all. Here we express not just hope but also practical actions that the scientific community can take to strengthen international ties at a time when they are most needed. We suggest that these actions represent a commitment to science as a global good that will support and strengthen international scientific cooperation through this particularly challenging time.

### What has Happened?

The Trump administration moved very quickly in implementing a series of executive orders that reduced the capacity of health and medical researchers to work toward health and well-being for all. Among the most significant are the cuts made by Elon Musk's Department of Government Efficiency (DOGE), a re-imagined and renamed United States Digital Service with an evolving mandate aimed at "cutting costs to save taxpayers money" <sup>4</sup>. DOGE activity has led to widespread funding cuts across international aid and both intramural and extramural research activity across a wide range of government agencies, including the National Institutes of Health (NIH), National Science Foundation (NSF), Centers for Disease Control (CDC), and others. The Trump administration also ended funding and participation in the World Health Organization (WHO) by executive order, effectively ending the United States' formal role in international public health promotion and disease surveillance.

Beyond these massive cuts to science and public health, the Trump administration has implemented an executive order to end efforts to support diversity, equity, and inclusion (DEI) in academia, government, and other services funded by the federal government<sup>2</sup>. They have specifically sought to eliminate any substantive focus on DEI in government-funded research grants, moving to either cancel entire grants or remove DEI-related aspects of funded research.

The effects of these cuts are enormous. They end US leadership in many international collaborations oriented toward producing and sustaining a better future for all, such as the United Nations Intergovernmental Panel on Climate Change. They undermine the important impacts that US investments have had in enhancing health and wellbeing worldwide, especially in low- and middle-income countries. Moreover, they erode the democratic foundations of science, in which a community of freely acting scholars exchange and debate ideas to inform public dialogue about what is good for the world and why.

### **The Impact of Tariffs on Collaborative Sentiment**

However, perhaps the greatest risk to US participation in the democratic, international exchange of scientific ideas comes from the centerpiece of the Trump administration's policy on global trade: Tariffs. The Trump administration's implementation of aggressive tariffs on its two closest neighbors, Mexico and Canada, has produced a strong reaction from both countries. Mexico and Canada have implemented counter-tariffs, and beyond the real economic impact of these tariffs on all countries involved, the trade war runs the risk of producing a strong sentiment of resistance to the investment of time and energy in support of US institutions, including health and medical science.

For both Canada and Mexico, the tariffs were originally described as punishment for a lack of attention to drug trafficking and related crime crossing the border into the US. In Canada, this claim was seen as baseless from the outset, especially in the context of Trump's repeated threat that the United States should annex Canada. The result has been a strong swell of national pride among Canadians and a growth in negative sentiment toward the United States. The negative sentiment has also come from universities, which anticipate economic impacts from tariffs and express motivation to avoid investing their effort in collaborations with US-based institutions. Given the deep and longstanding linkages between science institutions in Canada and the US, this shift marks a crucial moment in science collaboration between these two longstanding national partners.

Mexico has responded to tariffs by arresting members of fentanyl gangs, sending 29 drug cartel leaders to the US to face prosecution, and deploying 10,000 more soldiers to its northern border to tackle immigration<sup>5</sup>. A call to boycott US products has been widely shared on social media, which could be counterproductive as an economic recession in the US could severely hit an already troubled Mexican economy. This scenario would further deepen Mexico's disinvestment from science, as the federal budget allocated for science, technology, and innovation in 2025 is the lowest in 18 years<sup>6</sup>. After Canada, Mexico had the most tourist arrivals to the US between 2019 and 2024; Trump's tariff policies and a hostile environment are expected to affect tourist and business (including academic) travel from Mexico to the US in the coming years<sup>7</sup>.

The impacts of the tariffs in Mexico and Canada produce a hostile environment for scientific collaboration. Negative views about travel to the US arise from the disinclination to contribute to the American economy and perceived risks to personal safety due to growing international tensions and escalating anti-immigration activity. These realities raise doubts about researchers travelling to the US for conferences and research meetings, let alone longer stays in visiting research positions. Along with cuts to US-based funding, which also affects scientists outside of the US, these observations pose serious challenges for building and sustaining international collaborations between US-based and international scientists. These observations raise a crucial question for the scientific community committed to informing better futures for all: How should we respond?

## What Can We Do?

The international scientific community has an enormous opportunity to demonstrate solidarity and support with American colleagues struggling to see a future of which they and their work are a part. We outline practical actions that scientists and science supporters can take in countries worldwide to express such solidarity and support.

- Engage in dialogue with colleagues about the importance of mutual support and expressions of solidarity with US-based collaborators. Promoting a message of solidarity throughout international scientific networks will help to spread this sentiment. Encourage colleagues to avoid any kind of "anticipatory obedience" to recent US policy positions that undermine scientific collaboration's foundations.
- Send messages of support to US-based colleagues and collaborators. This is a time to deepen relationships, not to isolate those working on a shared mission.
- Find ways to leverage existing infrastructure outside of the US to support international collaborators. Where it is feasible to do so, use human resources, materials, and other infrastructures outside of the US to carry international projects forward.
- Shift the locus of leadership in international projects where US-based researchers' capacity to lead has been reduced by US policy. This moment represents an opportunity for researchers in other countries to step into leadership roles on international projects.
- Identify opportunities to track cuts to funding in content areas most relevant to your work or your field. Accurate, longitudinal information about cuts to science and their consequences will be essential in the future, and this information is at risk of being obscured or erased from the record.

Ultimately, the international, collaborative pursuit of knowledge to support global cooperation will not end because of the actions of a US president. However, these actions represent a crucial opportunity for the international community to rally support and deepen the relationships that build global networks on which such science depends.

**Funding.** This research received no external funding.

**Acknowledgments.** The authors would like to thank their institutions and collaborators for their intellectual support and commitment to international scientific cooperation. No financial support was received for the development of this article.

**Conflicts of Interest.** The authors declare no conflict of interest.

---

## REFERENCES

1. The White House. Establishing and implementing the President's "Department of Government Efficiency" [Internet]. 2025 [cited 2025 Mar 9]. Available from: <https://www.whitehouse.gov/presidential-actions/2025/01/establishing-and-implementing-the-presidents-department-of-government-efficiency/>
2. The White House. Ending radical and wasteful government DEI programs and preferencing [Internet]. 2025 [cited 2025 Mar 9]. Available from: <https://www.whitehouse.gov/presidential-actions/2025/01/ending-radical-and-wasteful-government-dei-programs-and-preferencing/>

3. The White House. Withdrawing the United States from the World Health Organization [Internet]. 2025 [cited 2025 Mar 9]. Available from: <https://www.whitehouse.gov/presidential-actions/2025/01/withdrawing-the-united-states-from-the-worldhealth-organization/>
4. The White House. Implementing the President's "Department of Government Efficiency" cost efficiency initiative [Internet]. 2025 [cited 2025 Mar 16]. Available from: <https://www.whitehouse.gov/presidential-actions/2025/02/implementing-the-presidents-department-of-government-efficiency-cost-efficiency-initiative/>
5. Najjar F. 'Cool head': How Mexico's Claudia Sheinbaum got Trump to halt some tariffs [Internet]. Al Jazeera; 2025 [cited 2025 Mar 26]. Available from: <https://www.aljazeera.com/news/2025/3/6/cool-head-how-mexicos-claudia-sheinbaum-is-handling-trump-and-tariffs>
6. Cano J. Tendrá presupuesto 2025 nivel más bajo en ciencia desde 2008 [Internet]. México Evalúa; 2025 [cited 2025 Mar 26]. Available from: <https://www.mexicoevalua.org/tendra-presupuesto-2025-nivel-mas-bajo-en-ciencia-desde-2008/>
7. Deutsche Welle. EE. UU. pierde atractivo para turistas latinoamericanos – DW – 19/03/2025 [Internet]. dw.com; 2025 [cited 2025 Mar 26]. Available from: <https://www.dw.com/es/estados-unidos-pierde-atractivo-para-turistas-latinoamericanos/a-71978735>

**Received:** March 9, 2025 / **Accepted:** May 20, 2025 / **Published:** June 15, 2025

**Citation:** Shaw J, Saldaña-Tejeda A, Celi LA. Supporting Science as a Global Good in Crisis. Bionatura Journal. 2025;2(2):17. doi: 10.70099/BJ/2025.02.02.17

#### **Additional information**

Correspondence should be addressed to: [Jay.shaw@utoronto.ca](mailto:Jay.shaw@utoronto.ca)

**Peer review information.** Bionatura thanks anonymous reviewer(s) for their contribution to the peer review of this work using <https://reviewerlocator.webofscience.com/>

#### **ISSN.3020-7886**

All articles published by Bionatura Journal are made freely and permanently accessible online immediately upon publication, without subscription charges or registration barriers.

**Publisher's Note:** Bionatura Journal stays neutral concerning jurisdictional claims in published maps and institutional affiliations.

**Copyright:** © 2025 by the authors. They were submitted for possible open-access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).