

Genome Canada Overview and Challenges



Overview

Genome Canada is a not-for-profit organization, funded by the Government of Canada. They act as a catalyst for developing and applying genomics+ and genomic-based technologies to create economic and social benefits for Canadians. They:

- connect ideas and people across public and private sectors to find new uses for genomics
- invest in large-scale science and technology to fuel innovation; and,
- translate discoveries into solutions across key sectors of national importance, including health, agriculture and agri-food, forestry, fisheries and aquaculture, the environment, energy and mining.

Challenges

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▼ Challenge 1

Optimizing science communication technologies and platforms against misinformation.

The global pandemic has accelerated the pace of science and generated vast amounts of information in a short amount of time. In genomics, researchers are rapidly investigating the novel coronavirus genome and how it interacts and behaves in humans. The information and data being generated from this research is being openly shared in near real-time through platforms like GISAID, and intersects with several other data spheres including immunology, vaccine testing, and health outcomes. At the same time, scientists and non-scientists alike are consuming this flood of available information on platforms like Slack, Twitter, and a wide variety of media channels. Much of this is happening before the formal checks and balances of science, like peer review, have taken place. Additionally, this new pace of data production does not necessarily provide adequate time frames to appropriately synthesize and make sense of new and varied information. While the benefits of these communication and social media tools may outweigh the disadvantages for scientists in an emergency, we're still learning about the role of these platforms in terms of open consumption and knowledge synthesis.

In the future how can we better utilize these tools to combat misinformation and help inform individual decision-making?

▼ Challenge 2

Building a research community at the ready: diversifying the genomics talent pipeline

More than ever, we can observe the value of science to society in real-time. From vaccine and therapeutic discoveries, to medical and policy decisions, science is everywhere. Genomics has been no exception. In many ways, genomics has gone mainstream against the backdrop of the global pandemic. Much of this is due to the major advancements in genomics over the last decade. Take for example that in 2003 the sequencing of the SARS genome took place over many weeks. In 2020, the sequencing of the SARS-CoV-2 genome was completed in just 10 days by Chinese scientists. However, none of this is possible without a steady supply of researchers, from trainees to advanced investigators. Science simply cannot happen without the right human capital.

How can Canada expand and diversify a genomics talent pipeline from undergraduate to post-doctoral levels to build a research community that is poised to address challenges in health, agriculture, and the environment?

▼ Challenge 3

Keeping our teams connected in the virtual office

COVID-19 is not only a public health crisis. There are enormous impacts occurring in our social fabric, particularly in our professional environments. Genome Canada is part of a dispersed network that includes regional Genome Centres in six locations across the country. In the past, this network has relied on the ability to come together in person for corporate meetings and research competitions, which often benefit from interpersonal interaction and communication.

In the context of a completely virtual network that spans the country, what new ways should Genome Canada and the Centres use to connect over 100 staff and build a common vision and social capital?

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