



**Genome  
Canada**

## BRIDGING GENOMICS AND SOCIETY

Genomics is about more than DNA. It's about understanding the impacts and supporting the responsible and ethical uptake of genomics research and technologies.

Since our inception, Genome Canada has been a world leader in **genomics and its ethical, environmental, economic, legal and social aspects, which we call GE<sup>3</sup>LS**. Today, Genome Canada embeds a GE<sup>3</sup>LS research component and genomics in society strategy in all our challenge-driven initiatives, including required investment in **knowledge mobilization** and **engagement work**.

At Genome Canada, we're committed to:

- Building public trust and understanding of genomics.
- Fostering the conditions for the responsible and equitable uptake of genomics research and innovation.
- Supporting evidence-based policy regulation and decision-making.
- Addressing historic inequities in genomics research, promoting equitable benefit-sharing, and respecting Indigenous rights to self-determination in genomics research and implementation.

### GE<sup>3</sup>LS research

GE<sup>3</sup>LS research is the study of the implications of genomics in society, including its ethical, environmental, economic, legal, and social impacts. It enhances our understanding of research outcomes from the perspectives of the social sciences, humanities and other disciplines.

#### Through partnership, GE<sup>3</sup>LS research:

- Supports social understanding and uptake of genomics technologies.
- Bridges gaps between genomics researchers and other stakeholders.
- Identifies inequalities in access to and benefits from genomic solutions.
- Uplifts and incorporates Indigenous-centered methodology that draws on traditional Indigenous knowledge and methods.



### Examples of GE<sup>3</sup>LS research

The [BeeCSI](#) project strives to improve the health of Canadian honeybees by developing a health assessment and diagnosis platform. The GE<sup>3</sup>LS research team is working with beekeepers, industry technology-transfer teams, and diagnostic labs, to consult with federal and provincial regulators to ensure that these tools are implemented properly and are accessible to the beekeeping industry. By providing an objective means to diagnose bee health, these internationally leading tools will be instrumental in reducing conflict between beekeepers, farmers and government regulators, often caused by uncertainty about the factors affecting bee health or colony loss.

[FISHES](#) (*Fostering Indigenous small-scale fisheries for health, economy, and food security*) will develop and apply genomic approaches that incorporate Traditional Ecological Knowledge to address critical challenges and opportunities related to food security and commercial, recreational, and subsistence fisheries of northern Indigenous peoples in Canada (Inuit, Cree and Dené communities). FISHES will also contribute to forecasting the response of key fisheries to rapid global and socioeconomic changes in northern Indigenous communities.

[PEGASUS-2](#) is researching genomics-based non-invasive prenatal screening tests for Down Syndrome and other chromosomal anomalies. The GE<sup>3</sup>LS research team is looking at the cost effectiveness of expanding screening to other conditions and the ethical, social, and legal implications of doing so. This work will enable earlier and more accurate detection of fetal chromosomal anomalies and provide strategies to support shared decision-making between couples and their health-care professionals.

# KNOWLEDGE MOBILIZATION AND ENGAGEMENT

To further GE<sup>3</sup>LS and genomics-based research, Genome Canada mobilizes knowledge to drive the adoption and implementation of genomics solutions. This work also focuses on increasing public awareness of the benefits of genomics.

**The Canadian Genome Enterprise, which comprises Genome Canada and six regional Genome Centres, works with stakeholders to:**

- Engage in dialogue to support evidence-based policy, decision, and regulation-making that informs and affects the societal uptake of genomics.
- Collaborate with communities and end-users in the co-creation of genomic solutions and ensure they are applied equitably and respond to real-world needs.
- Promote genomics literacy and awareness in Canada through traditional media, social media, events and strategic partnerships.
- Intentionally integrate knowledge mobilization into our research investments.



## AT A GLANCE

### CAPACITY BUILDING

**We're building capacity in genomics by:**

- Hosting virtual symposia to build genomics knowledge with high school students across Canada, in partnership with [Let's Talk Science](#).
- Leading a citizen science project involving more than 1,000 high school students annually across Quebec, collecting genomic data to better understand biodiversity in waterways through [environmental DNA](#).
- Developing an agriculture and food-themed [Teacher's Guide](#) for Ontario classrooms in collaboration with [AgSpace](#), and the [Agricultural Adaptation Council](#).
- Working with Indigenous-led organizations like [SING Canada](#) to build Indigenous capacity and scientific literacy on the basics of genomics, bioinformatics, and decolonized bioethics.

### POLICY AND REGULATION

**We help shape genomics policy and regulation by:**

- Hosting webinars, publishing articles, and convening groups to shape policy and regulation in partnership with groups like the [Canadian Science Policy Centre](#) and the [Public Policy Forum](#).
- Providing expert advice to Parliamentarians through invited participation in [Parliamentary Committees](#).
- Hosting annual forums and events including:
  - The annual Don Rix Lectures and the Genomics Forum (led by Genome BC).
  - Day at the Legislature (led by Genome Prairie).
- Contributing to and supporting relevant policy work including the [Canadian Genomics Strategy](#), [Canada's 2030 Biodiversity Strategy](#), and the [Sustainable Agriculture Strategy](#).

### AWARENESS AND LITERACY

**We're raising awareness and literacy in genomics by:**

- [Blogging](#) about provincial impact stories to highlight the innovators behind them (led by Genome Alberta).
- Hosting podcasts, including:
  - [Nice Genes](#)—a podcast to foster an understanding and appreciation of genomics sciences among educators, students and the public (led by Genome BC).
  - [ADN podcast : trois lettres qui changent le monde](#)—a podcast to highlight genomic discoveries and their impacts around the world (led by Génomique Québec).
- Engaging with new audiences, including youth, by partnering with science influencers like [Science Sam](#) (led by Ontario Genomics).
- Highlighting collaborative work from across Canada through educational videos such as [FastTRAC](#) (led by Genome Atlantic).

Questions? Please contact us at [info@genomecanada.ca](mailto:info@genomecanada.ca)

GENOMECANADA.CA

@GenomeCanada

GenomeCanada

Genome Canada