



Genome
BritishColumbia

Genomics positively impacts life, every day.

STRATEGIC PLAN 2023-2026

"Genomics positively impacts life, every day."



Strategic Plan 2023–2026

"Genomics positively impacts life, every day."

Territorial Acknowledgment

While Genome British Columbia (Genome BC) works in all parts of the province, it acknowledges that its office is located on the traditional, ancestral, and unceded territories of the Coast Salish peoples, including the **xʷməθkwəy̓əm** (Musqueam), **Səlilwətaʔ/Selilwitulh** (Tseil-Waututh) and **Skwxwú7mesh** (Squamish) Nations who have been stewards of the land since time immemorial.

Notice of Copyright

Genome BC Strategic Plan 2023–2026. Copyright © 2023 Genome BC. All rights reserved.

Proprietary Information

The information in this document is proprietary to Genome BC and may not be used, reproduced, or disclosed to others except as permitted in writing from Genome BC. The recipient of this document, by its retention and use, agrees to protect the same and the information herein from loss, theft, and compromise.

Contact

Genome British Columbia
400–575 West 8th Avenue
Vancouver, BC V5Z 0C4
Tel: 604.738.8072
Fax: 604.738.8597

Printing date

April 2023

Table of Contents

Executive Summary	6
Genome BC's Logic Chart: 2023-2026	8
About Genome BC	9
Vision	9
Mission	9
Value Proposition	9
Values	10
Culture	11
People	12
Genomics — Current and Future Opportunities	13
BC's Global Leadership in Genomics	19
Our Plan: 2023-2026	22
Research Mandate	22
Programs, Tools and Capabilities	27
Innovation Mandate	30
Entrepreneurship and Commercialization Mandate	33
Communication and Societal Engagement Mandate	35
Equity, Diversity and Inclusion	39
Indigenous Peoples and Genomics	42
Financial Plan: 2023-2026	44
Appendix 1 — Long and Medium Term Deliverables	45

Executive Summary

Since its inception in 2000, Genome British Columbia (Genome BC) has invested nearly \$1.3B in over 500 genomics research projects. It is estimated that by the end of 2026, Genome BC will have contributed \$5B to BC's Gross Domestic Product (GDP) and enabled 51K jobs¹ to what is already a globally recognized life sciences cluster in British Columbia. As genomics² has progressed, Genome BC's focus has evolved as well, moving from supporting predominantly discovery research to including application and translation³ with an additional focus on innovation – the practical translation of ideas and research outcomes into new and improved products, services, processes, systems or social interactions. In addition to discovery-based research, Genome BC's programs advance products, services and companies with an emphasis on innovation and entrepreneurial support. Education, genomics and society⁴, communications and public outreach are also key to enhancing Genome BC's portfolio of activities and continue to drive its credibility, visibility and ability to deliver impacts.

Genome BC will invest at least \$246M in this three-year plan to support BC-based researchers and innovators and global leadership in genomics. We expect the \$78M from the Province will attract \$168M in co-funding. Genome BC will continue to apply the power of genomics to better the lives of British Columbians and all Canadians through a high performing health care system and sustainable and competitive agrifood and resource based economic sectors, which will enable us to grow, attract and retain research talent in BC. Through complex research and innovation, and the mobilization of partner investments, we will mitigate risk in the translation and commercialization processes.

Genomics is enabling and driving new solutions, new business and the economy – from health care to agriculture and sustainable food systems to mining and clean energy, forests and fisheries. Genome BC is applying the power of this transformational technology to the most pressing societal, environmental and economic challenges. We are bridging the gap between research and clinical application by

¹ Economic Impact Analysis Executive Summary, MNP LLP, 2023.
https://www.genomebc.ca/wp-content/uploads/2023/02/0118_MNP-Economic-Impact-Executive-Summary_Feb2023.pdf

² Genomics is the science that aims to decipher and understand the entire genetic information of an organism (i.e., plants, animals, humans, viruses and microorganisms) encoded in DNA and corresponding complements such as RNA, proteins and metabolites. For the purpose of this plan genomics is defined broadly and includes genomics, proteomics, metabolomics, transcriptomics and other related disciplines.

³ Genome BC defines stages of research as the following: discovery emphasizes the analysis of large volumes of experimental data with the goal of determining new knowledge; applied research is a methodology used to solve a defined, specific application; and, translational research applies findings from basic science towards defined end-user results.

⁴ Social science and humanities research that addresses the societal implications of genomic applications.

applying new research, developing and utilizing data and building capacity resulting in the deployment of new tools with a deliberate focus on access, equity and education. Genomics is helping to move precision medicine to personalized health – from diagnostics and treatment to prevention.

The utility of genomics goes well beyond human health and Genome BC will continue to advance sustainable and competitive agrifood and natural resource-based economic sectors. Genomics research and application will help BC transition to a more sustainable low carbon economy, protect natural capital and biodiversity and promote equitable development while respecting social and environmental boundaries. By focusing on food security, renewable resources and resilient ecosystems, Genome BC will promote growth and productivity while prioritizing ecosystem health and yielding creative solutions for an equitable, greener economy.

Equally important is Genome BC's role in transforming social systems – the legal, ethical, environmental, economic and social challenges essential to realize the responsible uptake of genomic benefits. Our strategy builds assets such as increased resource capacity, infrastructure and public and private investment and actively contributes to the development of associated public policy. The introduction of a new interdisciplinary research and policy centre⁵ will join experts from multiple disciplines to accelerate responses to current challenges and effectively and simultaneously contribute to policy making and implementation. With an inaugural focus on biodiversity, this approach will help drive the responsible adoption of genomics.

Through a lens of Equity, Diversity and Inclusion (EDI) and accessibility to all, Genome BC is committed to securing equitable access to and participation in relevant genomic activities and technologies across BC's economy. Genome BC will create opportunities to understand the needs of Indigenous peoples and other marginalized communities and increase access to, and reduce barriers for, Indigenous-led innovators, researchers, businesses and entrepreneurs to work with Genome BC.

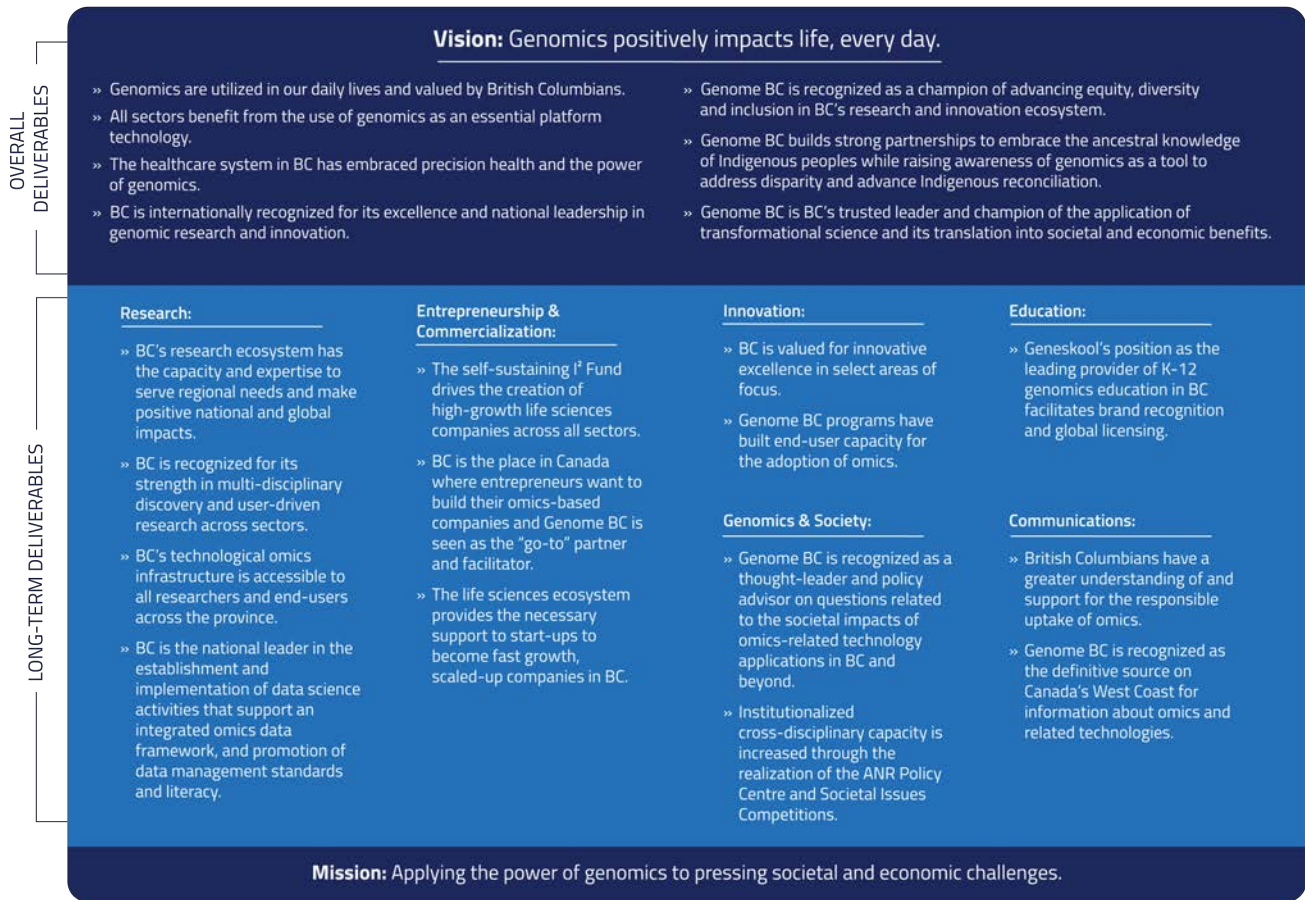
Genome BC's explicit innovation mandate, introduced in our 2020 plan, will be enhanced through additional funding and innovation specific and capacity building programs with an aim to enhance access to and utility of genomic technology. Through our Entrepreneurship and Commercialization programs, Genome BC will continue to bridge gaps in today's innovation ecosystem.

⁵ The name of the interdisciplinary research and policy centre is yet to be determined.

Scientific literacy is essential to empower people and communities to make more informed decisions about their healthcare, manage their resources and inform societal issues. To meet the rapid advancements of all transformational technology, including supporting career development, Genome BC will continue to grow its robust outreach programming, including the expansion of Geneskool™, the continuation of Genome BC’s podcast, *Nice Genes!* and targeted opportunities for public engagement and dialogue. We are committed to supporting the development of critical thinkers, problem solvers and tomorrow’s entrepreneurs.

This plan builds upon the organization’s achievements to deliver a future where genomics positively impacts our daily lives, transforms our health care and offers practical solutions for humanity’s biggest challenges, such as climate change, food security and environmental protection. The result is the effective translation of genomics to benefit the people of British Columbia, Canada and beyond.

Genome BC’s Logic Chart: 2023-2026



About Genome BC

For 22 years, Genome BC has been an independent non-profit organization dedicated to applying the power of genomics to pressing societal, environmental, and economic challenges. We support world-class genomics research and innovation with the aim of growing a globally competitive life science sector and delivering sustainable benefits for BC, Canada and beyond.

Vision

Genomics positively impacts life, every day.

Mission

Applying the power of genomics to pressing societal and economic challenges.

Value Proposition

To apply the power of genomics to better the lives of British Columbians and all Canadians through a high performing health care system and sustainable and competitive agrifood and natural resource-based economic sectors.

We invest in research and innovation and drive the responsible uptake of genomics applications through expert services and societal engagement.

We are recognized for our cross-cutting genomic expertise, community building and connections. Our reputation and credibility are built on our accomplishments and capabilities.

Our unique approach allows us to undertake and manage complex research and innovation, mobilize partner investment and mitigate risk in the translation and commercialization processes.

Our 2023-2026 Strategic Plan reinforces the strategic levers first introduced in 2020 to demonstrate our organizational fitness through defined capabilities and mindset for successful plan implementation. The defined attributes of these levers helped move us forward to not only identify organizational values but embed them into the fabric and culture of our organization. These values are lived by our people and are reflected in everything we undertake. Similarly, we have evolved our Human Resource (HR) practices and policies and remain actively engaged in staff inclusion and satisfaction. We recognize that values, culture and HR best practices are key to the success of Genome BC as a knowledge-based organization.

Values

Organizational culture is a combination of shared values, beliefs and assumptions about how people should behave, how decisions are made and how an organization carries out its mandate - in essence it acts as a sort of “moral compass” for the organization.

Genome BC undertook an inclusive and comprehensive process to identify values that would reflect our beliefs and aspirations as an organization and inform our long-term strategy. They are not merely words; they are to be demonstrated and lived by us all.

INTEGRITY is at the core of our decisions and actions

EMPATHY is integral to our relationships

COMMITMENTS are honoured with passion and purpose

BOLDNESS and agility motivate our pursuits

CURIOSITY and wonder inspire us

Culture

Culture, while grounded by our values, is dynamic and requires ongoing support and attention. Genome BC's culture is owned collectively and is the responsibility of everyone. Executive champions the work, but individual staff, supported by cross functional staff Culture and Equity, Diversity and Inclusion (EDI) Committees, develop and drive unique initiatives.

Culture is essential for talent attraction, recruitment and retention and for ongoing staff engagement. It is unique to each organization and if nurtured and demonstrated can be the competitive advantage of an organization. In a competitive marketplace such as British Columbia it can be the difference maker in attracting and retaining top talent. Values and culture, supported by HR management allow us to strengthen and optimize Genome BC's organizational fitness through our strategic levers:

- Diverse Team of Experts
- Thinking Differently
- Purposeful Connections
- Speed to Impact

In support of this culture and organizational fitness we undertake regular employee surveys to inform continuous advancement of workplace culture, inclusion and engagement. The results inform specific initiatives which are defined, developed and implemented by the executive with support of the Culture and EDI Committees. Social activities are integral to staff cohesion and overall contentment. Creating these opportunities to relax, unwind, share interests and build trust and connectivity are equally important and is a further mandate of the Culture Committee. During the 2020-2023 period, corporate training sessions and workshops were provided to all staff to advance our collective knowledge and culture in several areas, including topics such as: unconscious bias training; anti-racism and allyship; workplace inclusion for gender and sexual diversity; mental health resiliency; Indigenous relationships and reconciliation; building trust in the workplace; and optimal teamwork. Genome BC will continue to offer corporate training that advances our organizational fitness and supports staff learning and growth.



People

As a people-centric organization, Genome BC's people are valued partners who contribute their time and talents to shape our culture, advance our mandate, and bring the strategy to life. Human resources are the collective responsibility of the executive and management under the leadership of the VP Communications and Societal Engagement and CFO and VP Entrepreneurship & Commercialization⁶. Recognizing that best in class HR policies and processes play a role in the recruitment, retention and management of an empowered and high performing team, Genome BC is committed to the development of current best practices and competitive compensation and benefits supported by an effective performance management system. In recognition of the value Genome BC places on its people, recruitment and onboarding of new staff is supported by all staff. A development program including professional development and access to additional coaching and mentorship contributes to qualification enhancement and personal and organizational growth. Additional measures to maintain organizational fitness and address emerging priorities are undertaken as part of ongoing growth and external HR support is accessed as required to ensure best in practice HR standards.

⁶ VP Communications and Societal Engagement oversees recruitment, retention, termination, employee relations and well-being (culture/values). CFO and VP Entrepreneurship & Commercialization oversees contracts, compensation, performance and development and related policy administration.

Genomics — Current and Future Opportunities

Where there is life, there is DNA.

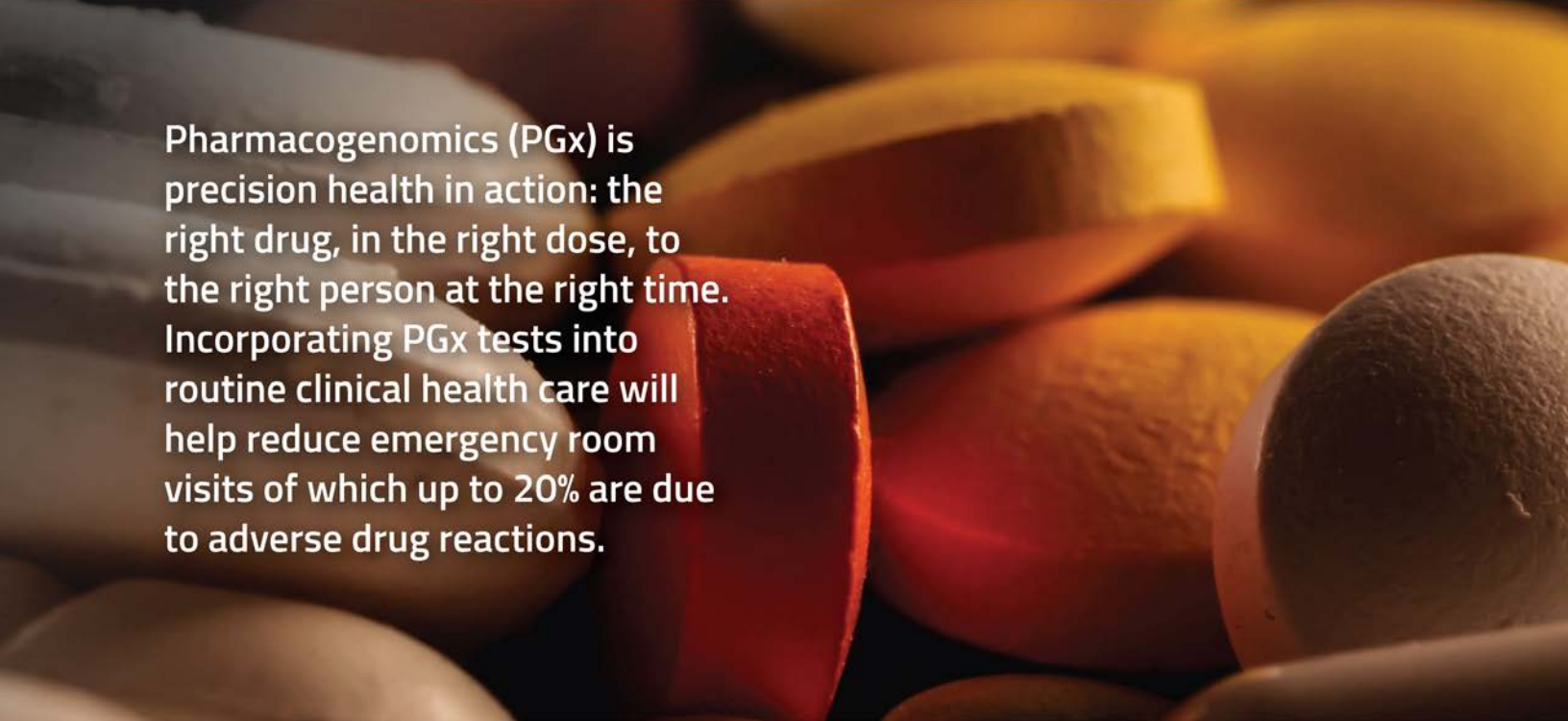
Genomics is the science of reading, editing and writing DNA.

Genomics has come a long way since DNA — the building blocks of life — were first discovered in 1869. Over the past 20 years, we have witnessed rapid discovery and technological development that, coupled with the plummeting costs of genome sequencing, has truly transformed the utility of genomics — and made a positive difference on our lives, every day. But we are only just beginning to realize its potential.

Since the mapping of the human genome was first completed in 2003, an initiative spanning 13 years at a cost of over \$2.7B, technological advances have enabled us to read DNA faster and cheaper — in mere hours and for \$100 per genome — and the downward trend of time and cost continues. With the advent of portable sequencers, we can apply this technology in real time, where and when needed. With these efficiencies, genome sequencing has become pervasive and accessible, leading to profound uptake and application of this technology. But sequencing is only one aspect of its power.

Genomics has evolved with phenomenal speed into a dominant scientific and business force. The field has expanded to include the sequencing and interpretation of multi-omics and interdisciplinary approaches that involve artificial intelligence, computational biology, blockchain and other emerging disruptive technologies. As new technologies emerge and are applied to genomics the field will continue to grow exponentially. Technologies that allow us to change the DNA of an organism were developed well before the human genome was sequenced⁷. However, CRISPR, the latest gene editing tool, originally invented in 2009, makes gene editing simpler, faster, cheaper, more precise and very accessible. CRISPR can help correct genetic mutations, modify traits and control pathogens. This same technology can be applied to agriculture where the introduction of beneficial traits such as higher crop yield and disease resistance are helping enhance food sustainability and security. At the same time,

⁷ BC's first Nobel Prize was won in 1993 by Dr. Michael Smith for his work on site-directed mutagenesis — a technique that allows researchers to alter specific parts of the DNA code and study how genes work, or why they don't work.



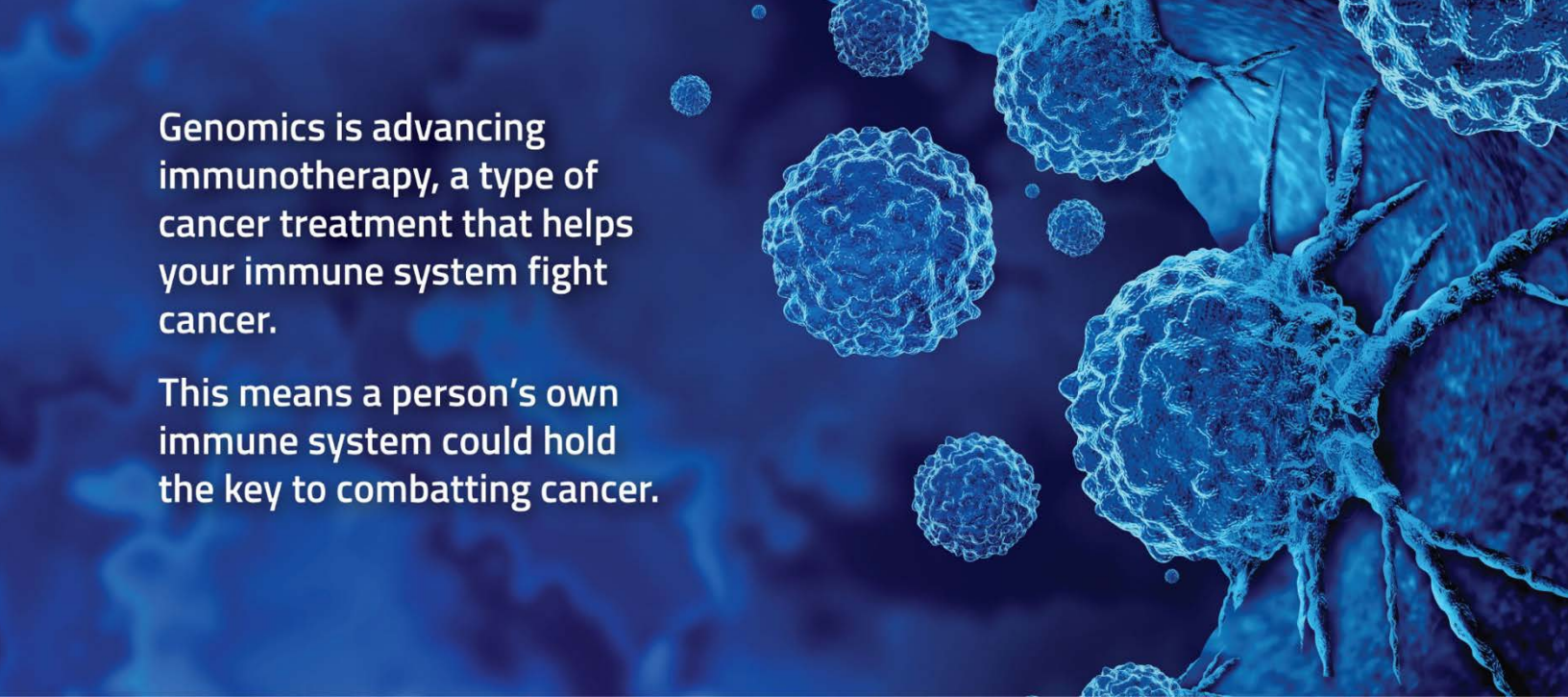
Pharmacogenomics (PGx) is precision health in action: the right drug, in the right dose, to the right person at the right time. Incorporating PGx tests into routine clinical health care will help reduce emergency room visits of which up to 20% are due to adverse drug reactions.

however, this technology, applied irresponsibly, can create significant risks. Genome BC's continuing work in genomics and society supports the further development of regulatory frameworks and policies to safely support the implementation of genomics. The unique challenges of the 21st century demand innovative solutions. With continuing existential threats to human health and increasingly dangerous environmental crises, genomic technologies hold the promise of helping to solve substantial global challenges.

The emergence of synthetic biology affords a future where DNA is not only edited but new DNA is written, broadening both the global potential and impact of the technology. This emerging technology is being hailed for its utility – diverse applications that can help address numerous pressing needs. Synthetic biology allows the creation of new, original life forms such as biochemicals and materials that are more efficient and longer lasting than current options, providing new approaches to energy production, water purification and waste management. As its ability to create sustainable solutions for the future are realized the investment in synthetic biology, both in research and in ventures, will only increase.



Genomics is at the core of a hand held device that can monitor the transmission of forest pests and pathogens in real time thereby protecting Canada's forests.

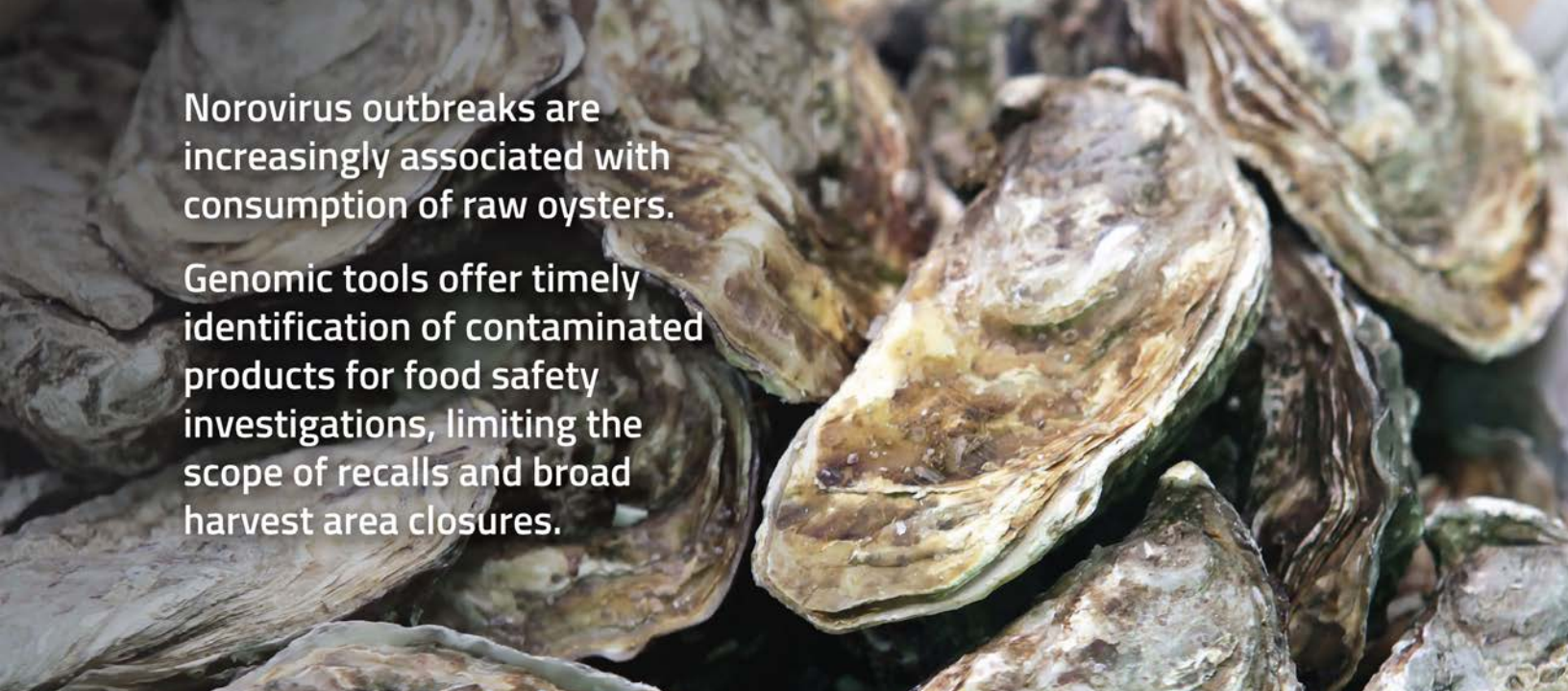
A microscopic view of several cancer cells, appearing as irregular, textured spheres with some cells showing branching or budding structures. The background is a deep blue with a subtle pattern of smaller, lighter blue spheres.

Genomics is advancing immunotherapy, a type of cancer treatment that helps your immune system fight cancer.

This means a person's own immune system could hold the key to combatting cancer.

Genomics is an interdisciplinary field that draws from multiple industries, enabling it to be applied and translated across all economic and social sectors. Because of this, there has been a vast increase in data production with an immense potential to revolutionize research and create new opportunities in healthcare, agriculture, and beyond. Effective data collection, storage management, and analysis are essential for unlocking this potential. Without the capability to store, process and link large volumes of data, the valuable insights contained in genomic datasets will be inaccessible. To harness the full potential of genomics, access to not only the data but also the right analytical methods for understanding it, must be fully leveraged. Genomics has contributed to solutions for some of our most pressing global challenges: precision medicine, infectious disease surveillance, climate change, biodiversity loss and renewable resources. With the commitments of government and industry to advance clean growth through measures such as renewable energy targets, energy efficiency standards and ambitious climate goals, genomics is well positioned to make an indelible impact.

Genomics and digital transformation are impacting our lives, industries and communities. Powered by big data and artificial intelligence, genomics is enabling the transformation of personalized medicine to personalized health – shifting the paradigm from diagnosis and treatment to prevention. For example, with the advancement of wearables, micro-sampling devices, and lifestyle apps, combined with rich data sources and clinical and genomic data, we can identify patterns in health behaviour and generate actionable insights, which will result in improved patient outcomes and a healthier population. Such impact has been seen in cancer, rare diseases, cardiovascular diseases, and common diseases such as diabetes and familial hypercholesterolemia, to name a few.



Norovirus outbreaks are increasingly associated with consumption of raw oysters.


Genomic tools offer timely identification of contaminated products for food safety investigations, limiting the scope of recalls and broad harvest area closures.

The critical use of genomics during the pandemic further underscores the power of science to rapidly address emerging health crises. However, the utility of genomics can also be measured by its application in areas beyond human health and disease. British Columbia has been ravaged by extreme weather events, from heat domes and severe drought and wildfires followed by atmospheric rivers and flooding. These events are a stark reminder of the threat climate change poses to our province and world.

Genomics is providing new and transformative ways to address these challenges and alleviate environmental stressors. Genomic technologies determine which plants and trees will be better able to adapt to new environmental conditions, thereby informing reforestation strategies by predicting tree populations at high risk. These technologies are used to identify and manage invasive pests such as the Asian long horned beetle and gypsy moth, as well as diseases causing pathogens that pose threats to forests and many fruit crops. Genomics is also used to monitor and manage at-risk species, including goshawks and grizzly bears. Looking forward we anticipate surveillance systems that can predict risk to crops and livestock and management of our natural resources — all driven by genomic insights.

Industry research predicts the global genomics market to grow rapidly⁸. Anticipated changes to health care alone are staggering, with precision health care expected to replace the existing delivery model,

⁸ <https://www.grandviewresearch.com/industry-analysis/genomics-market>



Climate change means rethinking
which trees are planted where.

Genomics technology helps
predict the best trees for each
location to maximize yield.

allowing for better prevention and treatment⁹. Similar transformations are underway in agriculture, natural resources and environment. Unlocking this potential will not only require research, biological and computational technologies and the translation of genomics into innovative applications, but it will also necessitate a transformation of social systems. Dealing with the legal, ethical, environmental, economic and social challenges will be essential to realize genomic benefits responsibly.

This kind of utility does not happen overnight; it comes from years of building infrastructure and capacity across many disciplines and making the calculated investment necessary to benefit society. For 22 years, this has been our *raison d'être*, our passion is to improve people's lives through credible research, innovation, strategic collaboration and technology platforms. Equally important is our proactive leadership to realize positive societal impacts and the responsible uptake of genomics. Since inception, Genome BC has led and supported the ongoing research and dialogue required to identify and respond to the societal implications of genomics, including through its genomics and society activities. Unlocking the potential requires equal and simultaneous allocation of resources to research, innovation and the transformation of society's existing social systems. Genome BC recognizes its opportunity to lead and influence in this important area — to assist BC and Canada in realizing the positive impacts of genomics through responsible and positive applications.

⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5989714/>

BC's Global Leadership in Genomics

Genomics has progressed at an increasingly rapid rate, and BC's investments to advance genomics research and innovation are supporting the growth of a world-class life sciences ecosystem on Canada's West Coast. Advances in lab automation, sequencing, artificial intelligence, bioinformatics and analysis have expanded capabilities and reduced costs, making genomics accessible for an increasing number of day-to-day applications. Scientific research, basic and applied, continuously generates new discoveries, rapidly expanding the breadth and depth of scientific knowledge. It is the translation of these research outcomes into new products, services, processes, and systems that creates value in the economy and public good benefits. Ecosystems that are able to drive the acceleration of research and translation into practice will be more competitive and create a thriving innovation rich environment for research and companies.

Genomic progress creates the potential for large societal and economic benefits across all sectors. BC is home to Canada's largest biotech company, STEMCELL Technologies; Canada's largest medical device company, Starfish Medical; and Canada's three largest biotech companies, AbCellera Biologics, Aurinia Pharmaceuticals, and Zymeworks Inc. In addition, new promising biotech companies continue to emerge, such as Precision NanoSystems and XENON. Entire industries in agrifoods, health care and medical devices, and direct-to-consumer testing companies are being transformed by genomics. Genome BC, in its role as ecosystem builder, embraces this innovation process with purpose by bringing together world-class research capabilities, government and industry.

Since inception, Genome BC has leveraged its strategic programs and projects to manage a cumulative portfolio of nearly \$1.3B in over 500 research projects, technology platforms and innovation initiatives. This includes 1,117 collaborations with partners across BC, Canada and in 42 countries, \$969M in co-funding secured, 152 BC-based companies advanced, 3,718 scientific papers published and 767 patent applications filed¹⁰. Genome BC will continue to leverage the strength of its strategy to capitalize on its track record of attracting external funds at a ratio of 1:4 to the benefit of all British Columbians.

Throughout the last 22 years, Genome BC has enabled the growth of a world leading genomics innovation ecosystem here in BC. One with the highest genomics citation rates in any Canadian province indicating that genomics research in BC is very strong. BC's papers in genomics were cited

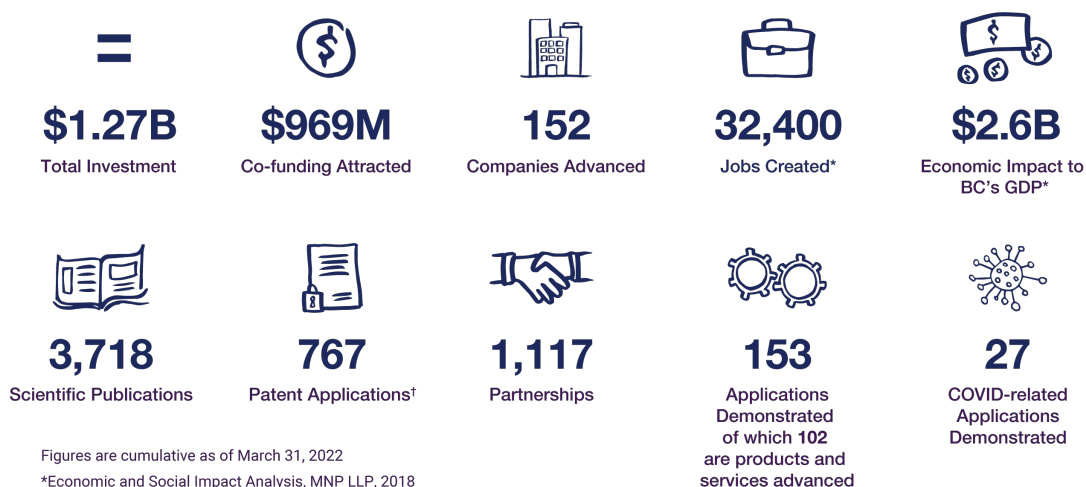
¹⁰ Figures as of March 31, 2022.

70% more often than the world average and about 20% of papers were among the 10% most cited worldwide¹¹.

Since Genome BC was first created in 2000, the economic impacts that have been created and enabled by its strategic investments into research projects and entrepreneurship and commercialization activities have been substantial. MNP estimates that, by March 2026, Genome BC's cumulative activities will have contributed nearly \$5B to BC's GDP, created and enabled more than 51,000 jobs, and contributed over \$1B to government revenues¹².

For the 2023-2026 period, Genome BC aims to leverage Provincial funding of \$78M over three years to generate more than \$168M in co-funding in projects, platforms, and other functions, for a total investment portfolio of at least \$246M.

The provision of support from the Province of BC through secured early funding has been a critical element of Genome BC's success for three main reasons: it attracts and retains outstanding researchers and innovators for BC; it enables the maintenance and expansion of BC's globally competitive life sciences cluster; and it ensures that BC will continue to accrue societal, environmental, and economic benefits from its long-term investments in genomics research. The Province of BC's ongoing support allows Genome BC to capitalize on the critical 'first-investor dollar' that drives funding partnerships, enables us to support BC based start-ups, partner internationally, attract co-funding and retain top talent.



¹¹ Bibliometric analysis on genomics research in Canada, focusing on British Columbia, Science Metrix, June 2018.

¹² Economic Impact Analysis Executive Summary, MNP LLP, 2023.
https://www.genomebc.ca/wp-content/uploads/2023/02/0118_MNP-Economic-Impact-Executive-Summary_Feb2023.pdf



Our Plan: 2023-2026

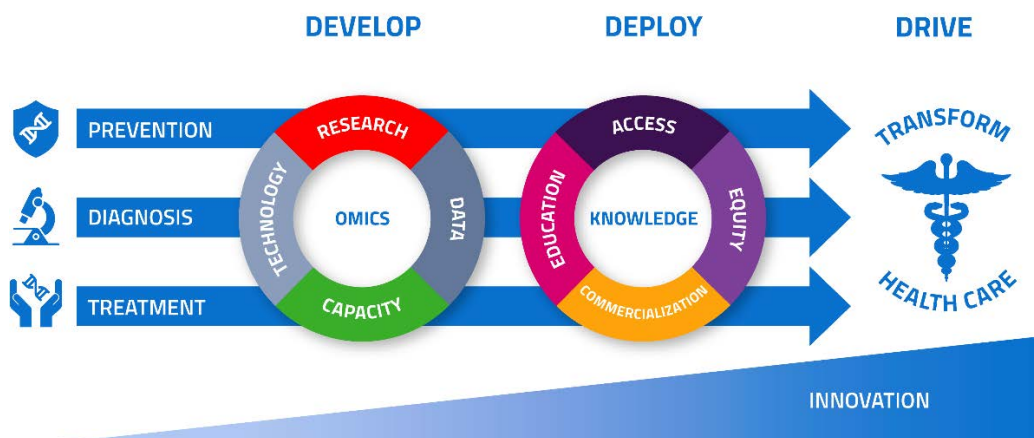
Research Mandate

Genome BC's research mandate is central to our value proposition: To apply the power of genomics to better the lives of British Columbians and all Canadians through a high performing health care system and thriving agrifood and natural resources sectors.

Strategic Approaches

Applying the power of genomics to transform health care

Genome BC will drive the responsible uptake of genomics by bridging the gap from research to the clinic. Through better disease prevention, diagnosis and treatment, genomics will improve health outcomes and sustainability of BC's health care system. Through genomics we will develop research, data, capacity and technology to deploy new tools and knowledge and we will do this with a deliberate focus on access, equity and education.



Applying the power of genomics to transform health care

Genome BC will:

- Build capacity in research, technology and data solutions;
- Support innovation to facilitate adoption;
- Support evidence-based decision making;
- Reduce barriers to uptake;
- Incorporate voices of patients, families and underrepresented groups;
- Contribute to equitable health care;
- Support commercialization to deliver social and economic benefits; and,
- Understand public health needs and solve cross-sector challenges through a One Health approach.

Advancing a Sustainable and Competitive Agrifood and Natural Resource Based Economic Sector in BC

Without safe and secure food and water sources people will not thrive. Through the responsible application and uptake of genomics, Genome BC will help move research results from the lab to BC's food producers and natural resource stewards who will work to improve the health of our ecosystem and advance a sustainable and competitive resource-based economic sector.



The Circular Bioeconomy of Well-Being SOURCE: European Forest Institute

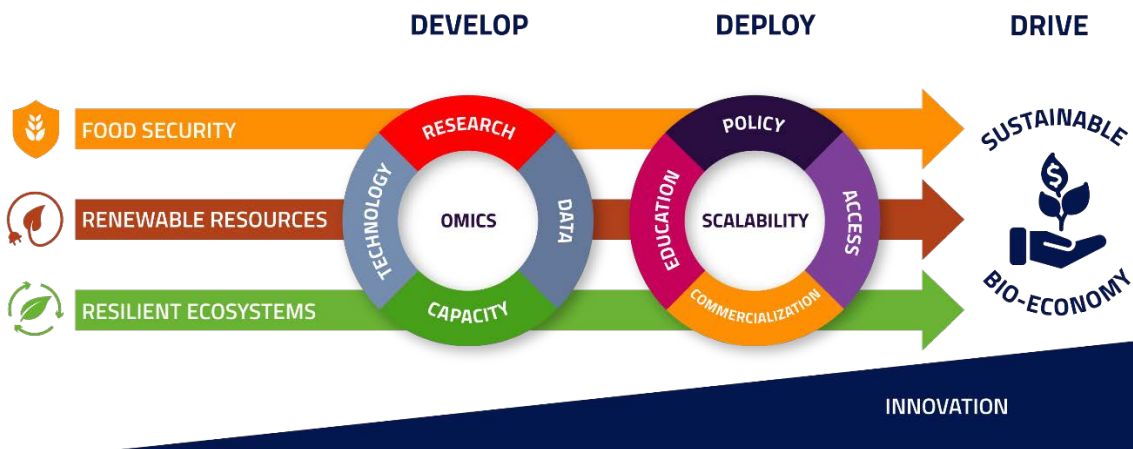
A genomics focus on Agrifood and Natural Resources (ANR) will help BC transition to a more sustainable low carbon economy, protect natural capital and biodiversity and promote equitable development within social and environmental boundaries in development of a circular bioeconomy. Moving forward we will look for new and existing opportunities to integrate and leverage biodiversity genomics to further demonstrate economic impacts and inform policy and regulatory development.

By focusing on food security, renewable resources, climate change and resilient ecosystems we will promote growth and productivity while prioritizing ecosystem health and yielding creative solutions for an equitable, greener and more competitive resource-based economy in BC.

Our strategy collaboratively builds assets (i.e., increased research capacity, infrastructure, public and private investment) and actively contributes to associated public policy.

Genome BC will:

- Increase capacity in genomics research, technology and data solutions;
- Build trust in genomics technologies through increased awareness and education of economic and social benefits;
- Position genomics research for translation into practical solutions;
- Encourage research-based evidence in critical decision making;
- Co-develop goals and solutions for equitable sharing of natural resources; and,
- Support commercialization to deliver economic benefits.



A sustainable resource-based economy for BC

One Health

There is a need to better understand the interplay between animal and human pathogens, how this impacts several key BC sectors: human health, agriculture and the environment and the opportunities for genomic solutions. Through our support of specific One Health projects such as Avian Influenza and COVID-19 in mink, we know that genomics can provide powerful surveillance tools to help us better identify risks to human health and agriculture and develop mitigation strategies to defend against them.

Genome BC will develop a One Health approach and develop coordinated and collaborative approaches to combat infectious diseases of zoonotic origin. We will draw upon BC's expert capacity of scientific and sector knowledge to improve the health and well-being of animals, people and their environment – and their connectivity – to enable BC's health, population, environment and economy.



One Health

Data

Genome BC strategically promotes data collection, management, storage, analysis and integration – all of which are essential to the optimization of genomic research and innovation. Our data strategy represents a cross cutting pillar in our research and innovation mandate and builds on the notion that publicly funded data are public goods and as such should be openly shared to deliver social, environmental and economic benefits.

Much of the datasets resulting from Genome BC funded projects have value and utility beyond the purpose for which they are originally generated and unlocking their potential is an interdisciplinary and translational challenge which requires the engagement of multiple stakeholders including funders, data providers, innovators, researchers and end-users. To this end, Genome BC is committed to deliberately work with stakeholders to enhance the utility of data for the benefit of all British Columbians and will facilitate this through a metadata commons that will serve as a resource and forge new collaborations and promote secondary use of already existing genomics data. We will promote, mandate, actively support and rigorously assess, through our funding programs and other activities, clear plans for data governance including management, sharing as well as the provision for secondary data access.

Genome BC will also lead the development and implementation of data science activities within BC research ecosystem and nationally to support data related outcomes and impact. And the development of tools and technologies to enable data collection, storage, management, analysis, and linkage through our Data Access, Integration and Analysis program.



Programs, Tools and Capabilities

Genome BC Programs

Past contributions by the Province of BC have enabled Genome BC to achieve notable success in securing Genome Canada funding. Cumulatively on average,



BC garners 28% of available federal funds in competitions through Genome BC, the highest per capita federal investment in the country and well above the 13% that BC would expect based on its share of Canada's population. Such results demonstrate the strength of BC's genomic research ecosystem.

While Genome BC's total funding continues to leverage Genome Canada programs, Provincial support has allowed us to ensure responsiveness here at home. Support from the Province of BC has enabled Genome BC to address provincial priorities and emerging issues – providing solutions to some of BC's pressing challenges. This strategic alignment and nimbleness are reflected through our research, as well as through activities in the areas of genomics and society and education and communication, all areas where Genome BC is occupying a leadership position within the Canadian genomic enterprise.

Over past years, Genome BC has complemented its programs-based funding approach with specific initiatives¹³ to pursue strategic outcomes and impacts. These initiatives create opportunities for additional co-funding partnerships to leverage Genome BC's provincial funding. Under this strategy, we will continue to develop such strategic projects in line with our research and innovation mandate and develop co-funding partnerships with regional, national and international partners to attract investments to BC.

Capacity Building

Genome BC provides funding support for smaller scale projects with an aim of building capacity in strategic areas for our region. Unlike other large-scale opportunities, Genome BC's capacity building programs look to identify new investigators – enhancing the growth, credibility and reputation of new BC researchers. This is an important instrument for Genome BC to develop strategic areas, prepare scientists for larger competitions, such as challenge oriented programming, and partnering with end-users on research, in addition to pilot studies in key areas for validation and scalability.

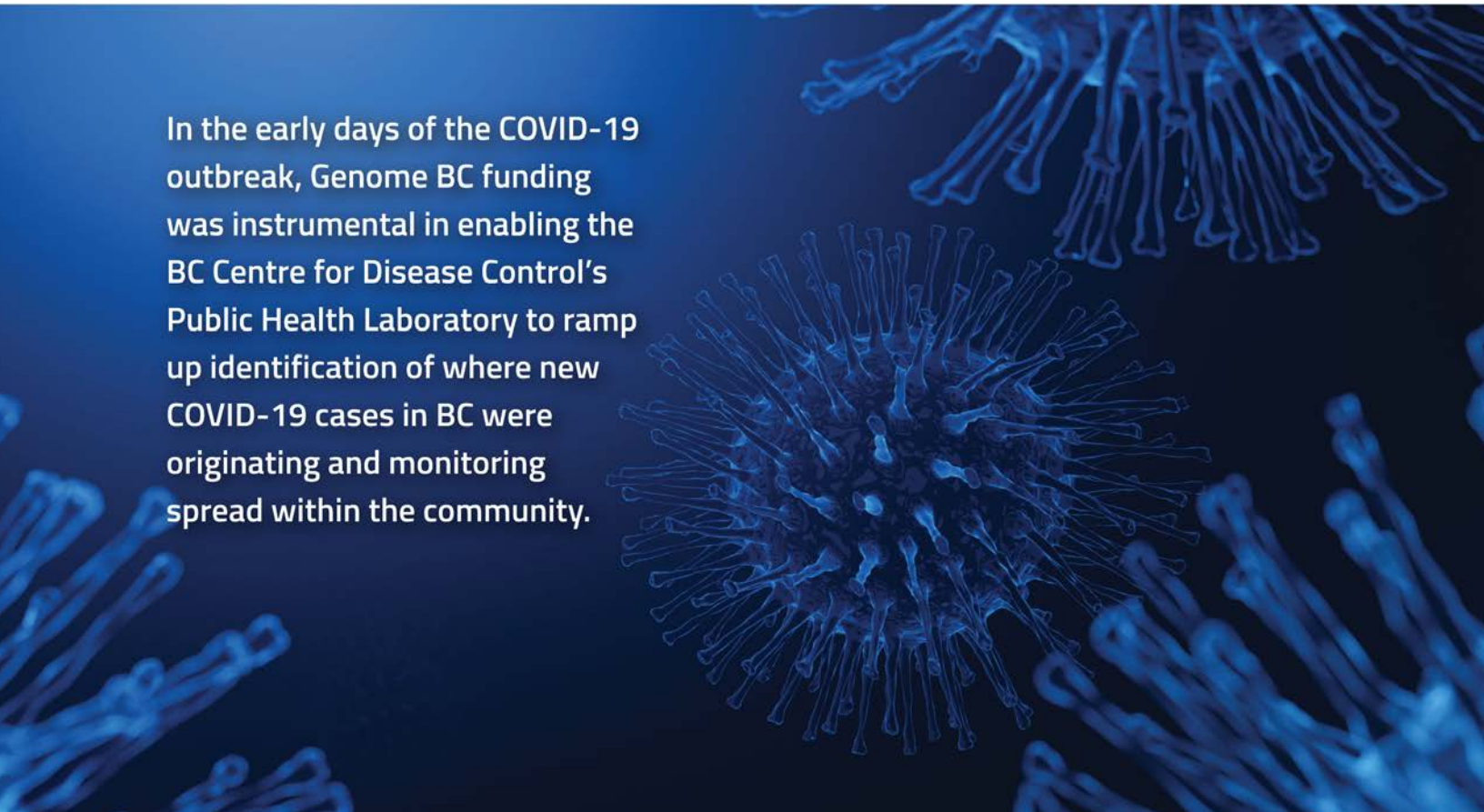
¹³ E.g., Canada's Digital Technology Supercluster projects, Marathon of Hope Network.

User Partnerships

These programs support projects that provide innovative and cost-effective solutions to user partner challenges across various sectors, which may lead to enhanced competitiveness and sustainability. This model encourages a collaborative research approach between sector partners and academia in BC. The program further seeks to develop and drive public private partnerships – a key component to advancing innovation in BC – which will lead to opportunities for follow-on projects and translational or commercialization opportunities.

Emerging Issues

Genomics is a very effective tool in response to crises and emerging issues across all social and economic areas of importance. Thanks to its expertise and relationships, Genome BC is well positioned to facilitate real time genomic solutions, whether through its role as funder and convener or through its scientific expertise, networks and/or credibility and public trust. Such challenges typically demand a quick and practical approach to decision making and include processes that are responsive, but function within a robust governance framework. Genome BC maintains an organizational structure, decision process and culture that affords nimbleness, flexibility and speed.



In the early days of the COVID-19 outbreak, Genome BC funding was instrumental in enabling the BC Centre for Disease Control's Public Health Laboratory to ramp up identification of where new COVID-19 cases in BC were originating and monitoring spread within the community.

Genome Canada Programs

Genome BC was founded as an independent regional genome centre as part of Canada's genomic enterprise anchored by Genome Canada and its federal research funding. As a result, Genome BC has traditionally engaged Genome Canada as a co-funding partner. Since inception, Genome BC has invested over half of all its available funds in Genome Canada co-funded projects in addition to direct investment in building BC's genomics capabilities through its own programs and initiatives.

In April 2021, the federal government declared genomics to be one of three strategic areas of scientific focus for Canada¹⁴ and allocated \$400M for a new Pan-Canadian Genomics Strategy, including \$136.7M for Genome Canada to kickstart the Strategy, with further investments to be announced in the future. The budget recognized the key role genomics plays in developing cutting-edge therapeutics and in helping Canada track and fight COVID-19. It recognized Canada's global leadership in the field and that genomics can improve Canadians' health and well-being while also creating good jobs and economic growth. Leveraging and commercializing this advantage will give Canadian companies, researchers and workers a competitive edge in this growing field. This support provided Genome Canada with bridge funding comparable to previous years for the 2022-2024 period and has placed it in a strong position to seek funding from the Strategic Science Fund beginning in 2024.

Genome Canada has developed a new strategy that will combine existing programs with a challenge-based approach. The aim is to achieve higher impact through challenge-driven genomics research and innovation by mobilizing Canada's genomics research and innovation ecosystem to deliver made-in-Canada solutions to complex challenges – driving tangible and equitable benefits for Canadians and communities. The inaugural funding opportunity, the Climate-Smart Agriculture and Food Systems Initiative, was launched in May 2022 and provided \$30M with a goal of reducing the carbon footprint and greenhouse gas emissions of Canada's agriculture and food systems. These strategic thrusts align with Genome BC's research and innovation strategy. While Genome Canada is likely to remain Genome BC's main co-funding partner, we will continue to explore additional co-funding sources to leverage our regional programs strategically and grow our collaborations with the world's best in areas of mutual interest and benefit. Furthermore, the extension of Genome BC's mandate to include innovation and impact through the responsible uptake of genomics positions Genome BC well for Genome Canada's challenge-based approach.

Genome BC will continue to assist in the preparation of all BC research teams competing for federal funding through Genome Canada's programs, leveraging our competitive advantage with the goal of optimizing success and enhancing capacity for BC. This process of preparation also assists BC teams in being more competitive in other funding competitions, an imperative to maintaining our competitive edge nationally and internationally.

¹⁴ The other two being Artificial Intelligence and Quantum Computing

Innovation Mandate

The term “innovation” is used in many ways, but for the purposes of this plan, Genome BC defines innovation as the practical translation of ideas and research outcomes into new or improved products, services, processes, systems or social interactions.

Innovation happens all around us and is not the exclusive domain of “innovation specialists.” A child innovates by taking a stick and turning it into a toy, a researcher innovates by taking their original hypothesis and converting it into a new methodology and an inventor innovates by transforming their idea into a new product. By funding applied and translational academic research, Genome BC has funded innovation in the past, particularly in the context of end-user-driven research. However, funding and program criteria have traditionally been focused on generating research outcomes, rather than innovation outcomes specifically. Genome BC’s 2020-2023 plan introduced an explicit innovation mandate. In pursuing our research mandate, we support research which *harnesses the power of genomics*. In pursuing our innovation mandate, we make sure this power is *applied to pressing social and economic challenges*. In doing so, Genome BC proactively, systematically and comprehensively facilitates the responsible uptake of genomics.

The Technology Readiness Level (TRL) methodology was originally developed by NASA and has subsequently been broadly adopted as an assessment of technology maturity¹⁵. We use an adjusted TRL system (based on a 9-point scale) to illustrate Genome BC’s mandate of research and innovation. Research projects generally reach TRL 3. The innovation mandate expands Genome BC’s support to TRL levels 4-7 and connects to Genome BC’s Entrepreneurship and Commercialization programming (see page 32) that targets TRL levels 8-9.



¹⁵ For detailed definition of TRL, visit <https://www.ic.gc.ca/eic/site/080.nsf/eng/00002.html>



In 2020, Genome BC recognized the need for active and deliberate programs to support its innovation mandate. Programs were developed in two key areas: innovation specific funding programs and capacity building. Launched in 2021, the \$1.5M Pilot Innovation Fund (PIF) was purposefully designed to align with the landscape of programs offered by governments and other funders while matching the needs of the omics ecosystem we support. Six diverse projects with a credible probability of success were selected for funding and launched in 2022. This 12-month pilot was deliberately designed to experiment and inform the specifics of the Genomics Innovation Fund (GIF) to be launched in 2023. Genome BC is also evaluating the creation of the Translational Innovation Fund (TIF) that will further support promising research projects to advance pathways and translate research outcomes into real life impacts.

Capacity building is essential for the uptake of genomics and is often a barrier to the implementation of genomic technology. Experts not only need to be aware of the tools available and have clear access to them, but they must also understand the utility. Genome BC's Genomic Education for Health Professionals (GEHP) program is the first initiative focused on capacity building within the health care system. Recognizing a lack of dedicated resources to educate health professionals as one of the major barriers to clinical implementation of genomics, Genome BC is working collaboratively with key stakeholders to develop new genomic educational tools for BC health professionals to support enhanced awareness, understanding and needs for delivering personal health care services in BC with a goal of increased equitable access to genetic and genomics services for all British Columbians. Experiences with this first program will inform the creation of additional capacity building programs across other sectors where education can be enhanced and tailored training will demonstrate the potential application of genomic solutions to real world challenges. Over the next three years these innovation programs will be resourced and gradually integrated into our ongoing and expanding program offerings. During this time systematic reviews of these initiatives, including impacts and outcomes, will be conducted to inform modifications and additional measures to round out Genome BC's longer term innovation programming.

Entrepreneurship and Commercialization Mandate

Commercialization

The Industry Innovation Program (I² Fund) started in 2016 with an aim to provide support for companies developing innovative life science technologies in the early stages of commercial development. The fund provides companies non-dilutive, low interest debt capital to bridge the period between early-stage seed funding and series A venture capital financing. Companies are expected to repay the capital, and accrued interest after four to six years. The fund targets a niche not addressed by private equity financing and viewed as a gap in today's innovation ecosystem. Over time the I² Fund is expected to become a self-sustaining evergreen fund. Genome BC is validating the concept through on-going investments of \$20M. To complement the capital provided, Genome BC also offers investee companies access to expert advice, networks and connections within BC's life science ecosystem. In addition to monitoring the outcomes of the fund and adjusting as necessary, Genome BC will continue to explore alternative commercialization funding models to ensure optimal support of the innovation mandate.

Entrepreneurship

In response to an identified need for enhanced support, in 2015 Genome BC initiated its Entrepreneurship Partnership Program (EPP). Designed to help build a strong life sciences ecosystem, the program aims to support existing incubators which target the mentoring of BC's life sciences entrepreneurs. In this way, Genome BC also advances life sciences start-up companies by leveraging existing programs. Currently Genome BC is providing support to six BC based life science incubators. The EPP provides Genome BC with important insights and access to the entrepreneurial community and strengthens the pipeline of opportunities for the I² Fund. We will continue to assess and review our entrepreneurship programs in the context of the Province of BC's overall technology strategy and as part of our innovation mandate.



Genome BC's Entrepreneurship Partnership Program is helping develop a new generation of entrepreneurs in BC.

The accelerators we support provide critical resources for entrepreneurs and start-ups to realize the potential of ideas that produce meaningful social and economic impact in BC and across Canada.

Communication and Societal Engagement Mandate

Genomics and Society

To meet its research and innovation mandates and achieve greater speed to impact, Genome BC needs a deeper understanding of the factors influencing the public's level of acceptance of current and emerging genomics technology. Responsible innovation suggests addressing societal implications as early in the research phase as possible, with the involvement of end-users, rightsholders and stakeholders. Through its research and societal engagement activities, Genome BC plays a key role in helping to appreciate the requirements for social license to utilize genomic technology. Implications regarding the use of genomics include ethical, economic, environmental, legal and social concerns (GE³LS). Social science and humanities theories and research methods are powerful tools that can be used to examine and recognize these societal implications and what may be important factors in the social acceptance of genomic technology. Another key driver of innovation is a clear regulatory pathway and understanding of potential economic impacts. This is addressed through the integrated GE³LS research in both Genome Canada and Genome BC programs.

Genome BC has increasingly committed its efforts in Genomics and Society (G&S). As genomics tools advance closer to application, genuine questions emerge about how each technology can be applied effectively and responsibly to maximize benefit to society. These questions extend far beyond biology and individual projects and require multi-level collaboration between actors and between disciplines. For example, economic modelling integrated with social and environmental impact research is crucial for policy changes and shifts. G&S focuses on *understanding* – through research, dialogue, and partnership – these questions to inform new scientific research, as well as policymaking and practice.

Genome BC's work to develop an interdisciplinary research and policy centre is one such demonstration. This centre will bring researchers from multiple disciplines together to accelerate the response to the current environmental challenges and effectively contribute to policy making and implementation. With an inaugural focus on biodiversity, the aim will be to enhance responsible genomic solutions to mitigate biodiversity loss and achieve sustainability and economic growth. The centre will facilitate collaborative and multidisciplinary natural and social science research programs; increase resilience in genomic research capabilities; stimulate innovation in technologies and approaches; build new partnerships; identify relevant policy issues; and foster the exchange of knowledge. It will enable a platform to provide policy makers with the knowledge to support innovative solutions to challenges related to biodiversity protection and conservation, so that ecosystem services are created and managed in a sustainable and regulated manner.

With climate change and disappearing biodiversity threatening our ecosystem and its inhabitants, the time is right to bring experts together to work towards making real-world change through science-informed policies. Policy and regulation change require evidence gathered from multiple perspectives making this initiative essential for success. Genome BC will continue to build upon our capacity and leadership in this space. To ensure the development of responsible and informed regulatory systems and policy, we must increase our leadership in this critical area – it is this triumvirate of research, innovation, and public policy that will drive the responsible and acceptable adoption of genomics technologies.

Education and Communication

Scientific literacy is essential for societal advancement. Advances in science and technology are rapidly changing our lives; it is affecting everything from how people engage with new products and services, to how students identify careers and prepare for them. Increasingly, people from all walks of life require a basic understanding of the principles of science, technology, engineering and math (STEM) and how they are applied. These skills, combined with other disciplines, teach us how to think critically, solve problems and make informed decisions. These abilities are becoming integral to every aspect of a person's life, from cradle to grave and are increasingly important with the advent and uptake of



124

COMMUNITIES
VISITED IN BC



1,986

VISITS TO
BC SCHOOLS



261,037

STUDENTS
ENGAGED

GENESKOOOL™

Figures are cumulative Jan. 1, 2009 – March 31, 2021

consumer genomics. We need to educate and empower people to make informed decisions and critically question the interpretation of results.

For its contribution to science literacy, Genome BC has developed several communications and education outreach programs in aid of increasing awareness and understanding of genomics and its impacts. Genome BC's Geneskool™ is a strong example of how science opportunities for youth can be enhanced, so that children grow up understanding, questioning and responsibly applying new technologies. In addition to a variety of in person and virtual programs, Geneskool supports teachers by providing hands-on classroom activities and workshops aligned to BC's grade 9–12 curricula to help educate students about this complex topic in new and interesting ways.

Volunteers are core to the delivery of Geneskool programs and serve as a direct connection between students and the possibilities of a STEM career. Providing beneficial opportunities for our volunteers is paramount and we continue to find ways to enhance their professional development and personal growth through this experience.

Genome BC's Geneskool positions genetics and genomics in the larger science education ecosystem through strategic partnerships and community development contributions. We foster collaboration and coherence amongst other organizations involved in promoting

Geneskool helps our students connect scientific explorations to careers in science. It has helped our students explore and connect to experiential learning opportunities outside of their school that may result in post-graduation or career/life pathway planning.

Geneskool has filled a niche for SD73 students, to foster the skills and positive attitude towards an important, in-demand sector.

*- Morgan Whitehouse
SD73 District Science Coordinator*



science as a signatory of the BC Science Charter¹⁶. Through partnerships with post-secondary institutions such as Capilano and Thompson Rivers universities, BC students are exposed to more advanced technology and intensive learning opportunities, often fuelling students' longer term interest in life science careers.

To capitalize on the strength and success of Genome BC's Geneskool we are repackaging the products and processes that underpin the program into a licensed suite of resources suitable for global licensing. Genome BC is committed to public outreach through thoughtful two-way dialogue — enriching an understanding of the life sciences as evidenced by our ongoing engagement with the media, industry, educators, students and the public.

We will continue to leverage our extensive network of researchers, policy makers, industry partners and entrepreneurs to help facilitate scientific literacy through our robust outreach programming across the province.

Through current and new initiatives, Genome BC will maintain a balanced influence on how new developments in science are communicated and discussed and how public policy concerning genomics and its related issues evolve. We will utilize audience segmentation and opinion surveys to better understand where British Columbians are in terms of their attitudes and beliefs toward these technologies and identify where additional outreach is required. One such initiative is our podcast, (*called Nice Genes!*), which has now completed its second season.

Throughout this plan and in response to feedback, we will continue to enhance our production and content to grow our identified audience.

We will continue to tailor our strategies to support the public in keeping pace with an ever changing life sciences ecosystem. For genomics to be broadly adopted, policy makers, regulators and the public will need to be afforded the opportunity to learn about genomics and its potential applications and implications; Genome BC will enable them to do so.



¹⁶ <https://www.sciencecharter.ca>

GENOME BC'S COMMITMENT TO EQUITY, DIVERSITY AND INCLUSION

We are dedicated to promoting equal opportunities across everything we do, in terms of employment and training, providing services and our engagement in decision making. More specifically, at Genome BC:

We foster the recognition and appreciation of diversity within the Genome BC community;

We promote the full and equitable participation of individuals from diverse backgrounds in the continual evolution and shaping of Genome BC and assist them in the elimination of barriers to such participation;

We ensure that individuals are not discriminated against on the basis of culture, race, national or ethnic origin, religion, sex, gender identity, sexual orientation, marital or family status, physical or mental disability unrelated to job requirements, genetic information, or age; and

We encourage creativity and innovation, to ensure each member of the Genome BC community can give their best, and help us move forward with our equity, diversity and inclusion goals.



Equity, Diversity and Inclusion

Genome BC is committed to equity, diversity and inclusion in all we do and take a stand against racism and all forms of discrimination particularly in science and genomics. We recognize that this is a process that requires a sustainable approach. We will listen and learn and act, not just today, but over time, in order to live up to our commitment.

Inequality is a pressing societal and economic challenge and the COVID-19 pandemic has highlighted existing gaps. Fostering a diverse and inclusive workplace is not just the right way, but the only way to operate a modern organization, especially one that seeks unique ideas, experiences and perspectives to advance innovation. Genome BC is taking a proactive approach to tackling issues of inequality in the research and innovation ecosystem and is committed to ensuring that the power of genomics is responsibly applied to benefit all British Columbians. We are leveraging principles, best practices and benchmarking tools from the equity, diversity and inclusion field to support strategic mandates across our organization, Canada's genomics enterprise and BC's life sciences ecosystem.

A cross-functional staff EDI committee was established in 2018 and tasked with identifying internal and external tactics to advance these efforts, an undertaking now mirrored at the enterprise level involving all regional Genome Centres. Internally, our EDI and Culture committees collaborate with the executive team to foster and sustain an inclusive workplace environment consistent with our corporate values. Initiatives undertaken include: the creation of Genome BC's [Statement](#) on Equity, Diversity and Inclusion, a [Commitment](#) to address racism and diversity in science and genomics and reflective recruitment practices for both staff and Board members.

Externally, Genome BC seeks to improve the research funding landscape by placing increased emphasis on EDI both within teams and in project outcomes. The EDI committee recommends learning opportunities, policies and procedures and data collection and evaluation mechanisms to advance our strategic objectives. Viewing everything we do through an EDI lens provides a valuable suite of tools to help Genome BC fulfil its mission and value proposition and will continue to influence our decisions and direction as we move ahead.

Why Equity, Diversity and Inclusion is important to Genome BC

Genome BC is made up of a diverse team of professionals who commit themselves to equity, diversity and inclusion. We see the diversity of backgrounds, experiences and perspectives of our people as a key strength as we look to continually evolve and shape our organization, culture and strategy.

Over the last 22 years, Genome BC has enabled the establishment and growth of a very comprehensive scientific research ecosystem in BC. However, systemic inequities continue to exist in scientific research and the innovation ecosystem. Both at an institutional level, where the research is conducted and at the societal level, where the work must ultimately be applied. Genome BC is committed to making science and genomics more equitable and accessible to members of equity-seeking groups, including women and gender-diverse people, Indigenous, Black and people of colour (IBPOC), scientists, students, our colleagues and partners. We are committed to change, to learn and to grow as an organization and as individuals and use our platform responsibly to share this journey.

We are committed to addressing EDI through two main approaches: an internal workplace approach where we build a culture of EDI literacy and awareness of bias and inequities; and developing and supporting external programs and initiatives that promote greater equity, diversity and inclusion in the BC research community — facilitating a more inclusive and equitable research ecosystem that is truly innovative. By addressing both internal and external EDI strategies, Genome BC enables staff to address these challenging societal issues.

Indigenous Peoples and Genomics

The field of genomics has disrupted how society approaches solutions to many pressing social issues such as the impacts of climate change on the environment, cancer, rare diseases, hunger, water treatment, and the development of renewable, clean energy. While these advancements provide value to society, western culture tends to interpret the world in terms of Eurocentric values and experiences. Yet society is multi-cultural with many unique perspectives. Western approaches can be limited by the view that there is only one truth, based on science and a value of homogeneity. Conversely, the worldviews of Indigenous peoples vary greatly from the Eurocentric tradition. Indigenous cultures, while enormously diverse, share a worldview principle that centres inter-connectedness between all living things (everyone and everything) and values balance between the human and natural worlds¹⁷. Indigenous laws, traditions and cultures are spiritually grounded with a value system that upholds many perspectives and truths.

Indigenous populations to date have had little access to genomic technologies and the research that drives them.

A BC led genomics project has the goal of establishing processes for Indigenous governance of biological samples and genome data, in addition to developing policy guidelines and best practice models.

¹⁷ <https://lawjournal.mcgill.ca/article/heroes-tricksters-monsters-and-caretakers-indigenous-law-and-legal-education/>



To realize the full potential of genomics, considering both worldviews and ways of knowing can only help to accelerate the social and economic benefits of this work. Sometimes referred to as two-eyed seeing or walking in both worlds, incorporating both Indigenous ways of knowing along with western perspectives is key to raising awareness of scientific innovation across biological sciences and connection to the natural world¹⁸. Indigenous peoples' traditional knowledge about ecosystems over thousands of years is an essential perspective as unceded lands and territories continue to be of interest to extractive industries such as mining, oil exploration, and logging. Indigenous perspectives have the potential to provide insight, guidance and the environmental stewardship needed to solve the complex climate challenges of the 21st century.

Since time immemorial, Indigenous communities in Canada have preserved and protected biodiversity as a way of life. Through sustainable use of resources to sustain livelihoods and well-being, traditional knowledge of the environment offers invaluable insights into effective management practices. Additionally, Indigenous communities are involved in the use of genomic based activities and bioprospecting initiatives (researching genetic material from plants, animals, or microorganisms found within their regions with a view to discovering new products and applications). It is largely accepted that marrying science with ancestral knowledge fosters a greatly improved standard of natural resource management.

For Indigenous and non-Indigenous approaches to co-exist, it will require shared decision-making based on relationships of respect and reciprocity. Genome BC is committed to creating equitable access to and participation in all aspects of genomics research, innovation and impact. Through the demystification of and access to science through education, collaboration and co-design, as well as Board Governance representation and support, Genome BC will continue to advance engagement with Indigenous communities. Together, strong partnerships that embrace Indigenous worldviews and reclaim the ancestral knowledge of balance in the natural world, coupled with awareness of genomics as a tool to address disparity, is one step in our collective journey for reconciliation.

¹⁸ <https://bcmj.org/articles/two-eyed-seeing-current-approaches-and-discussion-medical-applications>

Financial Plan: 2023-2026

Genome BC's 2023-2026 Strategic Plan projects that the organization will leverage total Provincial funding support of \$78M to generate \$168M in co-funding in projects, platforms, and other functions, for a total investment portfolio of \$246M over the three-year period (April 1, 2023 to March 31, 2026).

FINANCIAL PLAN 2023-2026	TARGETS
Provincial Investment	\$78 million
Co-Investment Generation	\$168 million
Total Portfolio Valuation	\$246 million

CDNS	PLAN			
	Plan FY 2023/24	Plan FY 2024/25	Plan FY 2025/26	Plan Total
RESEARCH				
Genome Canada Challenge Projects	30,000,000	30,000,000	30,000,000	90,000,000
Genome BC Programs	4,000,000	5,000,000	6,000,000	15,000,000
GAPP	9,000,000	9,000,000	10,000,000	28,000,000
				133,000,000
INNOVATION				
Genomics Innovation Fund	5,000,000	5,000,000	5,000,000	15,000,000
Translational Innovation Fund	2,000,000	3,000,000	4,000,000	9,000,000
Entrepreneurship Partnership Program	1,600,000	1,600,000	1,600,000	4,800,000
Other innovation programs	2,000,000	3,000,000	3,000,000	8,000,000
				36,800,000
STRATEGIC/INTERNATIONAL				
Strategic and International initiatives	2,000,000	2,000,000	2,000,000	6,000,000
				6,000,000
COMM/ED/G&S				
Communications	1,250,000	1,300,000	1,350,000	3,900,000
Education	400,000	500,000	600,000	1,500,000
Genomics & Society	1,500,000	1,500,000	1,600,000	4,600,000
				10,000,000
CORPORATE MANAGEMENT				
Corporate management	3,000,000	3,100,000	3,100,000	9,200,000
				9,200,000
INDUSTRY INNOVATION				
Industry Innovation Program	16,000,000	17,000,000	18,000,000	51,000,000
	77,750,000	82,000,000	86,250,000	246,000,000

Appendix 1 — Long and Medium Term Deliverables

Overall Deliverables

- » Genomics is utilized in our daily lives and valued by British Columbians.
- » All sectors benefit from the use of genomics as an essential platform technology.
- » The health care system in BC has embraced precision health and the power of genomics.
- » British Columbia is internationally recognized for its excellence and national leadership in genomic research and innovation.
- » Genome BC is recognized as a champion of advancing equity, diversity and inclusion in BC's research and innovation ecosystem.
- » Genome BC builds strong partnerships to embrace the ancestral knowledge of Indigenous peoples while raising awareness of genomics as a tool to address disparity and advance Indigenous reconciliation.
- » Genome BC is BC's trusted leader and champion of the application of transformational science and its translation into social and economic benefits.

Research Deliverables

LONG-TERM DELIVERABLES

BC's research ecosystem has the capacity and expertise to serve regional needs and make positive national and global impacts.

MEDIUM-TERM DELIVERABLES

- » Initiatives are developed and implemented to support scientists to submit high quality competitive proposals in Genome Canada competitions.
- » At least one project is advanced for each of our ANR and Health strategic areas in alignment with the SDGs and where BC scientists can make an international impact.
- » At least one partnership is advanced in the ANR and/or Health sector(s) that enables BC scientists to be recognized internationally.
- » At least one partnership is advanced in the ANR and/or Health sector(s) with an additional national research funding organization to develop and implement projects / initiatives in support of BC researchers.

LONG-TERM DELIVERABLES	MEDIUM-TERM DELIVERABLES
<p>BC is recognized for its strength in multi-disciplinary discovery and user-driven research across sectors.</p>	<ul style="list-style-type: none"> » One new initiative is developed that supports scientists who focus on One Health priorities. » At least two projects are advanced that support BC's longer-term efforts to deploy omics routinely into public health and research efforts on infectious diseases. » At least one initiative/project is advanced towards a precision medicine approach (e.g., pharmacogenomics, rare diseases, oncogenomics). » User-driven programs are aligned with sector strategies and the innovation plan. » G&S research is integrated in relevant programs and initiatives. » A bioproduct flagship mission for the development and commercialization of a bioproduct is brought into operation.
<p>BC's technological omics infrastructure is accessible to all researchers and end-users across the province.</p>	<ul style="list-style-type: none"> » High-throughput platforms continue to be supported to provide access to cutting-edge technologies. » A partnership with an existing platform is advanced in alignment with sector strategies.
<p>BC is the national leader in the establishment and implementation of data science activities that support an integrated omics data framework, and promotion of data management standards and literacy.</p>	<ul style="list-style-type: none"> » Large-scale partnerships/initiatives are established that support the development of data-related outcomes and support BC scientists to share, analyze and integrate omics data. » An annual data sharing award for the BC community is established in collaboration with local academia and industry.

Innovation Deliverables

LONG-TERM DELIVERABLES	MEDIUM-TERM DELIVERABLES
BC is valued for innovative excellence in select areas of focus.	» At least two new approaches to accelerate innovation are delivered and reviewed.
GBC programs have built end-user capacity for the adoption of omics.	» A sustainable program for GEHP targeting nurse practitioners with competency training tools and education programs, supported by educational technologies is being realized. » Genomics education with competency training tools and education programs supported by educational technologies is being realized.

Genomics & Society Deliverables

LONG-TERM DELIVERABLES	MEDIUM-TERM DELIVERABLES
GBC is recognized as a thought-leader and policy advisor on questions related to the societal impacts of omics-related technology applications in BC and beyond.	» Ongoing three-year strategy is implemented for active participation in national and international conferences and policy engagement.
Institutionalized cross-disciplinary capacity is increased through the realization of the ANR Policy Centre and Societal Issues Competitions.	» A G&S policy roadmap is implemented to drive credibility and position GBC as a thought-leader in societal impacts of genomic applications in the Health and ANR sectors.

Education Deliverables

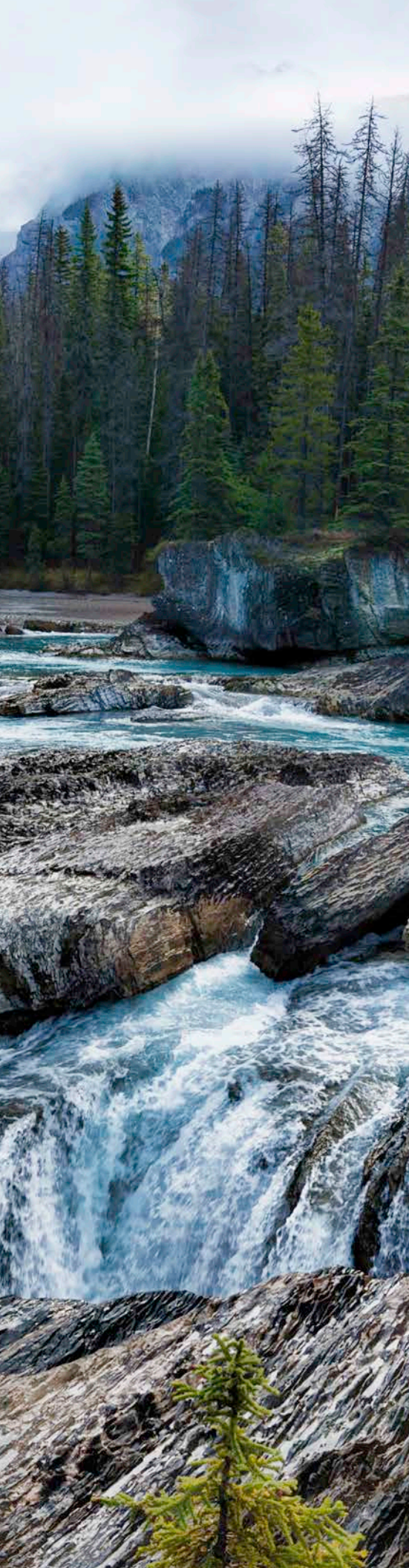
LONG-TERM DELIVERABLES	MEDIUM-TERM DELIVERABLES
Geneskool's position as the leading provider of K-12 genomics education in BC facilitates brand recognition and global licensing.	» Engagement with teachers, researchers and volunteers is driven through innovative events, initiatives and programs. » First iteration of "Geneskool in a Box" suite of resources is fully developed and evaluated through at least one partnership. » Educator advisory committee is leveraged to help inform Geneskool programs.

Communications Deliverables

LONG-TERM DELIVERABLES	MEDIUM-TERM DELIVERABLES
British Columbians have a greater understanding of and support for the responsible uptake of omics.	» Activities drive increased engagement with GBC communications outputs and GBC is increasingly recognized and sought out as a source for clear, comprehensible information on omics.
GBC is recognized as the definitive source on Canada's West Coast for information about omics and related technologies.	» Relationships with key entities and partners are identified, targeted and deepened.

Entrepreneurship & Commercialization Deliverables

LONG-TERM DELIVERABLES	MEDIUM-TERM DELIVERABLES
The self-sustaining I ² Fund drives the creation of high-growth life sciences companies across all sectors.	<ul style="list-style-type: none"> » Enter a partnership with another funder to further expand the scope of the I² Fund. » The I² Fund portfolio is grown to least 20 ventures (including exits) with an amount invested of over \$22M.
BC is the place in Canada where entrepreneurs want to build their omics-based companies and Genome BC is seen as the "go-to" partner and facilitator.	» Support is provided for omics companies in the I ² funnel to increase the number of investees.
The life sciences ecosystem provides the necessary support to start-ups to become fast-growth, scaled-up companies in BC.	» 60 SMEs are advanced and the training of 300 life sciences entrepreneurs is supported through the I ² Fund and its accelerator partners.



Genome
BritishColumbia

400 – 575 West 8th Ave.
Vancouver, BC V5Z 0C4

604.738.8072 | genomebc.ca

© 2023 Genome British Columbia, All rights reserved
P000.2023.2026 04/2023