

Genomics positively impacts life, every day.



ANNUAL REPORT 2022-2023

While our work is done in all parts of the province, we acknowledge that Genome BC's office is located on the unceded traditional territories of the Coast Salish peoples, including the territories of the x[∞]məθkwəyəm (Musqueam), Səlílwəta?/Selilwitulh (Tsleil-Waututh) and Skwxwú7mesh (Squamish) Nations who have been stewards of the land since time immemorial. We are honoured to perform the important work of Genome BC on these lands.

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GROWING GENOMICS

"The more we know, the more we realize there is to know."

-Thomas S. Kuhn

Thomas Kuhn is best known for his influential book, "The Structure of Scientific Revolutions," published in 1962. In this book, he introduced the concept of paradigm shifts and emphasized the role of scientific revolutions in shaping our understanding of the world. While this quote is often paraphrased, the core idea remains consistent: as we delve deeper into a subject or field, we become aware of the vastness of knowledge yet to be explored.

Genomics has undergone a remarkable journey of growth and transformation, propelling it from a scientific curiosity to a practical and impactful field. The rapid pace of discovery, technological advancement and cost reduction have expanded its utility and relevance leading to applications across social and economic sectors. However, as genomics continues to shape our present and future, it is crucial to navigate the challenges of responsible integration, promote understanding and ensure that the benefits of genomics are accessible to all, ultimately maximizing its potential for the benefit of society.

Over the past 20 years, we have witnessed rapid discoveries and technological development that, coupled with the plummeting costs of genome sequencing, has truly transformed the utility of genomics. It has ushered in a new era where genomics is no longer confined to theoretical research or limited applications but holds tangible benefits that positively impact our daily lives. Significant advancements in artificial intelligence, integrated with vast amounts of genomic data, are poised to have a profound and positive effect on genomics research and innovation.

The integration of genomics across various disciplines and industries has created many possibilities. Genomics is a tool now being applied to the greatest challenges from personalized medicine to biodiversity loss to food security and climate change.

In the area of health care, Genome BC has helped pave the way for a new era of precision medicine, where the unique genetic makeup of each individual holds the key to personalized treatments and targeted therapies. Lives have been extended, battles have been won and families have been given precious moments together. Genomics has proven to be an important tool in the diagnosis and treatment of cancer, rare diseases and the prevention of adverse drug reactions, as well as other health applications. The impact is tangible and while there is still much work to do, the future of patient care is being rewritten.

Moreover, genomics has found applications beyond human biology. In agriculture, it has empowered scientists to cultivate crops with enhanced traits, such as improved yield, disease resistance, and nutritional content, contributing to global food security. Genomics has enabled the preservation and recovery of endangered species in conservation efforts by unravelling their genetic diversity and facilitating informed conservation strategies. Even in the realm of forensics, genomics has provided invaluable tools for crime investigation and suspect identification.

While the progress in genomics is undeniably impressive, it is essential to acknowledge that the journey is far from over. As research continues to explore the vast depths of genomics, expanding our knowledge of life's building blocks, we must explore other aspects of understanding beyond biological research. The responsible integration and adoption of genomics within society requires developing capacity and collaboration across multidisciplinary natural and social science research programs. This involves addressing ethical and policy considerations, ensuring privacy and data protection, promoting equitable access to genomic technologies and fostering public awareness and education.

It also requires cross collaboration and partnerships. Genome BC has always endeavoured to be more than a funder of life science technologies. We value our role as a convener, facilitator and catalyst in driving research and innovation in the life sciences sector. Building strategic partnerships is paramount to our vision and is reflected in the values that we aim to demonstrate daily.

This past year, Genome BC was recognized with the 'Strategic Life Sciences Partner of the Year' award at the Life Sciences BC Awards Gala. This honour is particularly special to the organization because it comes from BC life sciences ecosystem and recognizes our commitment to supporting partnerships and driving positive impact.

Our success is borne from early discussions and last minute conversations with our partners - each giving us the opportunity to listen, learn to support their dreams which fuel innovation in our province. The even greater reward is being a part of shaping BC's competitive life sciences sector. This kind of success comes through strong partnerships and collaborations over two decades in the making.

We look forward to the future with our partners as we grow genomics and shape BC's life sciences ecosystem together.







Working in partnership with federal and provincial governments, health authorities, research institutions and the private sector, Genome BC is committed to advancing the clinical implementation of precision health in the province. Precision health approaches adapt medical care for a patient based on their lifestyle, environment and genomics. These initiatives rely on information about how the complete DNA sequence, or genome, of an individual influences everything from their risk of developing certain diseases to their likelihood of experiencing adverse drug reactions.

The idea of precision health with genomics at its core, has been gaining steam for some time now, yet only recently have patients become more aware of the role genomics can contribute to their health. The COVID-19 pandemic certainly helped heighten awareness of genomic technologies in part through a strong presence in the public eye, facilitated by daily briefings from the Provincial Health Officer and a strong visibility of stories in the media on the role genomics played in identifying the origin of virus strains and variants.

In reality, genomics has been delivering on its promise to actively transform the healthcare landscape and enhance patient health outcomes for more than twenty years. In the fields of oncology, pharmacology, rare and, infectious diseases, genomics has had significant impacts on diagnosis, treatment and prevention. Genomic technologies have revolutionized patient care — effectively improving

patients' health outcomes for the past two decades. However, most of these successes have been in a health research setting. Although these transformational technologies have shown promise, there are still many areas where their full potential has yet to be realized. In British Columbia, the push for precision health as a standard of care has gained momentum, but there are still obstacles preventing the clinical implementation of genomics and the shift away from a 'one-size-fits-all' approach to medical treatment.

In its role as a funder and a convener, Genome BC has had many consultations with health professionals to identify the gaps and barriers in BC's healthcare ecosystem limiting the clinical uptake of genomics research. A key finding through these consultations was the critical need for health professionals to have access to education and tools that would help adapt their practice in line with scientific



"Working with Genome BC to include information on genetic counselling, testing, and hereditary conditions, health providers can now access profiles of genetic clinics, send messages for advice and quickly find information about genetic assessment process through Pathways. This will help increase genomics knowledge and improve patient care."

- **Dr. Tracy Monk,** Physician Lead, Provincial Pathways

advancements. Capacity building is essential for the uptake of genomics and is often a barrier to the implementation of genomic technology. There is a need for more genetic counsellors to share their expertise as part of the implementation process. There is also a need for physicians and nurses to not only be aware of the tools available and have clear access to them, but they must also understand the value of genomics to make genomic medicine interpretable, accessible and applicable.

An asset map Genome BC produced with health professionals in 2019 identified current regional and Canadian based clinical genomics education resources for health providers engaged in diagnosis, prognosis and treatment. This map enhanced the awareness and potential of available tools and tests for clinicians and general practitioners to use in the care of their patients. This work continued through 2021 as Genome BC worked collaboratively with the medical ecosystem to develop an implementation framework with recommendations on key principles, tactics and exemplar projects.

Genome BC's Genomic Education for Health Professionals (GEHP) program is an initiative focused on supporting this framework and building capacity within BC's healthcare system. In developing the implementation framework, health professionals clearly indicated they do not want to be experts in the rapidly changing and advancing field of genetics. However, they recognize the importance of understanding its relevance to their daily practice and delivering optimal patient care. To this end, healthcare professionals seek clear guidelines on who is authorized to order genetic testing under specific clinical scenarios, streamlined and centralized referral and test ordering procedures, as well as tools that can assist with time-consuming tasks, such as patient consent and managing patient needs following the disclosure of test results.

In British Columbia, healthcare providers can easily access important information and supporting point-of-care tools through Pathways, an online resource created by BC physicians for BC physicians. This platform includes helpful handouts, websites and referral information

Genomics education for nurses in BC

Nurse Practitioners play an ever increasing and important role in BC's plan to improve patient access to primary care. These healthcare professionals diagnose and treat conditions, interpret routine and specialized tests, and initiate specialist referrals.

Genome BC has launched a pilot project to integrate genomics education into the existing Family Nurse Practitioner Program at the University of Northern British Columbia (UNBC). It will be the first project of its kind in Canada to incorporate the examples of genomics and precision health into the case-based, online learning frameworks in a relevant and relatable way.

The project will bring increased knowledge and skills in genetics, genomics and precision health not only to the students, but also the teaching faculty and clinical practice leads at UNBC. The project also works to address the social and geographical inequities in precision health delivery, thereby enhancing genetic and genomic access for patients who are in rural and remote communities.

Ultimately, the pilot project's aim is to provide enhanced nurse practitioner training programs for expanded use of genomics in primary care. A special area of focus will be to ensure genomic access and education is addressed in a culturally appropriate and safe way for Indigenous peoples.

such as wait times and specialty clinics. Genome BC is proud to have supported the development of the Genetic Assessment and Testing Services Care Pathway, which assists healthcare professionals in determining when genetic assessment may be necessary. The referral algorithm also provides information on available genetic clinical services and mainstream testing options. Additionally, the Early Pregnancy Care Pathway outlines prenatal genetic screening processes. All of this is part of a collaborative effort to provide the best care possible.

Rising to challenges presented by the move toward clinical implementation of precision health requires time, capacity, dedication and collaboration amongst stakeholders, including medical professionals, health authorities, funders, researchers, developers, and patient partners. Genome BC will continue to fill an important role as a funder and a convener, working with our partners across the ecosystem to bridge the gap from research to the clinic to deliver better disease prevention, diagnosis and treatment through genomics. Together, we can contribute to the transformation of healthcare — improving patient health outcomes and healthcare system sustainability.

Growing capacity for the development and manufacturing of lifesaving medicines

Genome BC is delighted that the federal government chose to fund Canada's Inmmuno-Engineering and Biomanufacturing Hub led by UBC. This world-class research facility will build on the strength of BC's life sciences innovation ecosystem, enhance Canada's readiness for the next public health crisis and contribute to the development of future game changing discoveries for the benefit of Canadians.

While BC's life sciences ecosystem may be relatively small in the global context, it is highly recognized for the innovative scientific research conducted at our province's esteemed postsecondary institutions, research centres and institutes. The remarkable findings derived from BC-based labs have resulted in significant advancements in medical innovation, positively impacting healthcare and preserving lives.

Nearly every COVID-19 vaccine candidate that progressed to advanced stages of development in 2020 relied on components that originated, were cultivated, or manufactured by a company or scientist based in BC. For example, the lipid nanoparticle delivery system for the safe transportation of mRNA vaccine into cells was an accomplishment led by BC scientists. Additionally, the initial authorized therapeutic for COVID-19 treatment was devised utilizing AbCellera's distinctive antibody discovery platform technology.

"Implementing a clinical genetics and genomics testing environment to enhance everyday clinical care that aligns with health system strategies to meet the needs of patients requires collaborative relationships and interconnectivity within the health system, including public and private lab system partners, as well as with the Ministry of Health."

 Dr. Craig Ivany , Chief Provincial Diagnostics Officer, Provincial Health Services Authority (PHSA)

¹ Government of British Columbia / 2023 Life Sciences and Biomanufacturing strategy



"The insight of life cycle health technology assessment is that healthcare decision making is a key enabler of evidence generation for equitable, timely, and sustainable access to precision medicine."

- Dr. Dean Regier, Senior Scientist, BC Cancer





Real world evidence for precision oncology

Cancer is a collection of related genetic diseases. These are caused by DNA mutations that change how cells grow and develop. Recent innovations allow us to sequence the complete set of DNA and RNA in a patient's cancer, known as the tumour genome. The hope is that the knowledge generated about the tumour genome compared to the normal genome will help us to develop treatments that target and kill cancer cells based on specific cancer-causing mutations. It will also help repurpose drugs that have been approved for other cancers sharing similar mutations. This mutation targeted approach is called precision oncology.

The Canadian Network for Learning Healthcare Systems and Cost effective 'Omics Innovation (CLEO) developed a framework to generate better evidence for precision oncology. CLEO based the approach on a concept called 'learning healthcare,' where data is systematically collected as part of routine patient care. The CLEO Network's primary aim is to support learning healthcare for precision oncology in Canada. Learning healthcare systems collect data, create evidence and use that evidence to inform treatment decisions.



"Implementation of life-cycle health technology assessment has the potential to accelerate patient access to cost effective new cancer therapies for patients. It will require close coordination between regulators, payers and the systems to support ongoing monitoring of patient outcomes."

 Dr. Tania Bubela, Dean of the Faculty of Health Science, Simon Fraser University





From merciless droughts that starve the land of precious water to erratic weather patterns that unleash violent storms upon fragile crops, the impacts of climate change on agriculture have become an undeniable reality. The interplay of rising temperatures, shifting precipitation patterns, and extreme weather events has plunged farmers into an uncertain future. As we grapple with the impact of climate change on agriculture, the question arises: How can we adapt and innovate to safeguard our food security in the face of this formidable challenge?

One approach that was launched in the past year was Genome Canada's \$30M challenge-driven genomics research and innovation initiative called Climate-Smart Agriculture and Food Systems (CSAFS). The program is funding a portfolio of interdisciplinary projects and establishing two national coordination hubs - one for data and the other for knowledge mobilization and implementation. The projects will bring together integrated teams of researchers from various disciplines to address specific climate and agriculture-related challenges with the goal of reducing the carbon footprint and greenhouse gas emissions of Canada's agriculture and food systems.

Meanwhile, the hubs will develop and implement plans for sharing data and discoveries, allowing results from one project to be translated and adapted for other food production systems or supply chains, cascading the impact of new findings throughout the broader food system.

Addressing the impacts that climate change is having on the health of BC's agricultural and natural resources will require a multi-faceted set of solutions. Genome BC is currently supporting many projects working towards sustainable agrifood systems and natural resources. The most recent come from the new Genomics Innovation for Regenerative Agriculture, Food and Fisheries (GIRAFF) program - a partnership between Genome BC and the Investment Agriculture Foundation of BC (IAF) to support the BC agriculture, food and fisheries sectors. Eight projects have been funded to develop new tools and approaches that will help these sectors mitigate and adapt to the impacts of climate change. Among other outcomes, these projects will:

- Investigate patterns in how cereal pathogens move into Canada to contribute to the Canadian early-warning system for producers.
- Create tools to predict the current climate resilience of Chinook Salmon stocks and their capacity for increased tolerance of events, such as heatwaves, and identify which salmon stocks are most resilient to temperature variation.
- Model how climate change will affect nutritional stress and disease in bees, to help BC beekeepers, crop growers and policymakers prepare and take preventative steps to mitigate future impacts.

Moving from agriculture to natural resources, the impacts of climate change equally jeopardize the health, ecological integrity and biodiversity of our forests. Genomics research is being applied to caring for the health of the whole forest, from projects studying the soil microbiome to the trees towering overhead to the animals below. Adaptation and mitigation strategies can inform sustainable forestry, such as selecting genetic variants that are more resilient and can withstand anticipated climate change impacts.

Finding the right path to a future unencumbered by climate change devastation will require increased collaboration and a thoughtful, considered approach. Genome BC has continued its efforts to establish an interdisciplinary research and policy centre. Once instituted, this centre will provide a collaboration space for researchers from multiple disciplines to generate new ideas, build partnerships, tackle pressing policy issues and pursue innovative solutions, initially in the area of biodiversity and conservation.

In the face of escalating challenges brought about by climate change on agriculture and natural resources, the imperative for innovative solutions and collaborative efforts has become clear. Programs like CSAFS and GIRAFF are actively driving cutting edge research and partnerships creating a path forward that will identify genomic solutions to some of these critical challenges and inform future funding opportunities. By leveraging genomics, these initiatives are fostering knowledge sharing, developing new tools, identifying genetic variants that can withstand the challenges of climate change and providing answers to the question of how we can adapt and overcome this challenge.



"There are ingenious and progressive solutions in British Columbia in response to pressing challenges like climate change, labour shortages and food security. The fusion of technology and agriculture is forging fresh avenues for BC farmers, bolstering and enriching our provincial food system, ensuring its vitality for generations to come."

 Peter Pokorny, Deputy Minister, Agriculture and Food, Province of British Columbia





Supporting innovative approaches to agriculture and aquaculture

The following are the inaugural projects of the GIRAFF program supported by Genome BC and the Investment Agriculture Foundation.

Developing Disease Resistant and Climate Change Resilient
Hop Varieties led by Mathias Schuetz and Paul Adams of the
Kwantlen Polytechnic University's Applied Genomics Centre. This
project will develop genomic tools to build a selection system
that will screen thousands of hop seedlings for genetic markers
and determine which are linked to positive traits such as disease
and drought resistance. This data will inform future efforts to
breed hop varieties that have the ideal mix of traits to be climate
change resistant.

KelpGen: Genomic Tools for Preserving and Restoring Canada's Kelp Forests, led by Gregory Owens from the University of Victoria and Chris Neufeld from the Bamfield Marine Sciences Centre (UBC). Kelp forests are under threat by multiple stressors including climate change which has resulted in the loss of more than half of BC kelp forests in the last eight years. The KelpGen project will develop high-quality genomic resources for two keystone kelp forest species. By quantifying how kelp populations are related, the team will guide conservation efforts to protect genetic diversity and adaptive potential. This work will also identify the genes involved in adaptation to warmer water.

Investigating how plants grow under nutrient-reduced conditions and the impact fertilizer has on nutrient acquisition and carbon sequestration at the tip of plant roots. Led by Jean-Thomas Cornmelis of UBC, the team is building towards the identification of new agricultural techniques that will allow crops to grow with less fertilizer.

Adapting cannabis for outdoor production to reduce greenhouse gas emissions is led by Marco Todesco of UBC and José Celedon from Aurora Cannabis. Indoor cannabis production has an extreme carbon footprint. The project aims to develop genotypes more suited to outdoor cultivation in the Canadian climate.

Leveraging genomic data from cereal pathogens to develop a biovigilance strategy is led by Gurcham Brar of UBC and Guus Bakkeren of Agriculture and Agri-Food Canada. They are investigating patterns in how cereal pathogens move into Canada, in order to contribute to an early-warning system for producers.

Identifying climatic determinants of pollinator health is led by Leonard Foster of UBC and Lan Tran of Agriculture and Agri-Food Canada. The project is modelling how climate change will affect nutritional stress and disease in bees, to help BC beekeepers, crop growers and policymakers prepare and take preventative steps to mitigate future impacts.

Biocontrol of bacterial blight in berries using bacteriophages is led by Syun Wang of UBC and Karen Fong of Agriculture and Agri-Food Canada. The bacterium Pseudomonas syringae has caused significant damage and economic loss to BC's blueberry sector. Bacteriophages are naturally occurring viruses that can infect and specifically kill bacteria. This project seeks to design, validate, and commercialize a new bacteriophage to treat the P. syringae-induced bacterial blight of blueberries.

Genomic tools for predicting climate change resilience in Chinook Salmon is led by Patricia Schulte of UBC. This project will create tools to predict the current climate resilience of Chinook Salmon stocks and their capacity to evolve increased tolerance for events, such as heatwaves, and identify which salmon stocks are most resilient to temperature variation.





Healthy ecosystems feature abundant biodiversity and host an intricate network of interactions between organisms and their environment. Humanity is intertwined with our ecosystems; we rely on them for food production, fibre and medicine provision, supporting human livelihoods and our overall well being. This interconnectedness and interdependence of human, animal and ecosystem health is the basis of the One Health concept.



"Maintaining and enhancing BC's rich biodiversity requires sharing knowledge and managing data on species, ecosystems, habitat and ecosystems services. We must find ways to bring together diverse scientific disciplines, diverse stakeholders and diverse knowledge systems, including Indigenous knowledge systems and local knowledge. We can achieve this through genuine partnership with First Nations."

 Lori Halls, Deputy Minister, BC Ministry of Water, Land and Resource Stewardship, Province of British Columbia



Embracing a One Health mindset is crucial for effectively addressing today's global challenges and achieving sustainable development. Emerging infectious diseases, such as Ebola, Zika and COVID-19, demonstrate the potential consequences of disrupting these environments. These diseases originated from wildlife before being transmitted to and subsequently afflicting humans. Preserving biodiversity and the health of these habitats is essential to minimize the risk of zoonotic diseases and safeguard public health.

Biodiversity loss threatens ecosystem stability, diminishes resilience to climate change, reduces the capacity to provide the services we rely on and has significant economic implications. Industries such as agriculture, forestry, fisheries and tourism rely on robust ecological systems.

The One Health approach recognizes the need for interdisciplinary collaboration. By integrating knowledge and expertise from various disciplines, such as medicine, veterinary science, ecology and social sciences, One Health seeks to address complex health challenges

more effectively. This holistic approach promotes preventive measures, surveillance systems and collaborative research to identify and mitigate emerging health threats. Conservation efforts and sustainable practices are paramount to preserving biodiversity and implementing the One Health approach. Sustainable land and resource management practices reduce negative impacts on biodiversity and maintain the integrity of ecosystems while protected areas, such as national parks and nature reserves, safeguard biodiversity by providing habitats for numerous species.

Education and awareness also play a vital role in promoting biodiversity conservation and the One Health approach. Educational campaigns can raise awareness about the consequences of biodiversity loss and the interconnectedness of human, animal and environmental health, inspiring action at various levels. By fostering a sense of stewardship and understanding the value of biodiversity, individuals and communities can contribute to the protection and restoration of ecosystems.

Biodiversity and the One Health approach are inextricably linked concepts

The concepts of biodiversity and the One Health approach are intricately connected and underscore the interconnectivity of life on Earth. Biodiversity is the foundation for ecosystem functioning, providing essential services and supporting human well-being. Embracing the One Health approach recognizes the intricate relationships between human health, animal health, and ecosystems, emphasizing preventive measures and interdisciplinary collaboration. By preserving biodiversity, protecting natural habitats, and adopting sustainable practices, we can secure a healthier future for ourselves, the animals we share the planet with, and the ecosystems that sustain us.

"Traditional ecological knowledge is handed down through generations and it focuses on how living things, including people, relate to their environment. Combining this vital knowledge with genomics techniques and technologies is helping us chart a path forward to healing the land and the waters for future generations."

- Mae Whyte, Restoration Program Manager for Blueberry River First Nations

In Canada, recognizing the importance of biodiversity and implementing the One Health approach necessitates braiding Indigenous and western perspectives. Indigenous Peoples possess unique knowledge systems and attitudes rooted in their cultural backgrounds and experiences. Their connection with the land and emphasis on interconnectedness offers valuable insights into biodiversity conservation and environmental stewardship. Western perspectives, grounded in scientific and ecological frameworks, contribute technical knowledge about ecosystems and species. Reconciling these perspectives requires respecting Indigenous Peoples' rights, governance systems, land stewardship practices and inclusive decision-making processes that value diverse perspectives.

Canada has a unique opportunity to take the lead in biodiversity genomics research, education, and social advocacy. Initiatives such as the Canadian BioGenome Project, iTrackDNA and BIOSCAN-Canada are already making significant contributions. Establishing a biodiversity genomics hub that provides coordinated domestic and global leadership offers numerous advantages for Canada in its efforts to protect global biodiversity and move towards climate and biodiversity targets more swiftly. Through collaborative efforts, scientific advancements and the integration of diverse knowledge systems, Canada can lead the way in preserving our planet's precious biodiversity for future generations.

Biodiversity is vital because it helps keep ecosystems stable, provides important resources, and helps nature adapt to changes in the environment. The One Health approach can help us preserve biodiversity, safeguard public health, protect the economy and ensure the well-being of present and future generations. Genome BC, in partnership with stakeholders across the nation, aims to conserve Canada's biodiversity and create a harmonious coexistence between humans, animals and the environment.

iTrackDNA is providing timely and relevant information regarding risk and impacts of human activities in the context of climate change

Canada is a natural resource exporting nation that values its biodiversity, clean water, and distinctive ecosystems. This vast nation is at a critical juncture with competing interests between rising societal pressure for environmental sustainability and the development of natural resources. As a result, natural resource management decisions by Canadian communities, Indigenous peoples, industries, and regulators require timely and relevant information regarding risk and impacts of human activities, especially in the context of climate change. The analysis of environmental DNA (eDNA) - genetic material shed from organisms into their environment - is highly promising as eDNA can provide nondestructive, non-invasive, rapid, cost-effective and accurate biodiversity information.

Led by Caren Helbing (University of Victoria), Valérie Langlois (Institut national de la recherche scientifique), Jérôme Dupras (Université du Québec en Outaouais) and Louis Bernatchez (Université Laval), the iTrackDNA project is building end-user capacity through innovative, accessible, socially responsible genomicsbased analytical eDNA tools.







BC's life sciences ecosystem is a strong economic engine for our province, with genomics at its core. Not only have genomic technologies emerged as powerful tools with wide ranging applications revolutionizing sectors such as healthcare, agriculture and forestry, but these technologies have also played a significant role in driving BC's economic growth. According to Life Sciences BC, the province is home to Canada's fastest growing life sciences sector, with more than 2,000 active companies employing 20,000 British Columbians and generating \$5.4 billion in annual revenue.²

Today, many BC organizations employ our world class scientists to help transform evidence from genomic research into life saving and health giving products and services. Genomic technologies have been instrumental in revolutionizing cancer treatments, preventing adverse drug reactions, providing a fundamental shift in the diagnosis of rare diseases and facilitating precision therapies for an individual's unique genetic profile.

Genomics has also been an important tool for ensuring food security, adapting to changing climates, enhancing conservation and biodiversity efforts and re-imagining approaches to biological engineering which have a significant role in the development of bioproducts. For example, using genomics, in combination with chemical and physical means, researchers

are developing biological catalysts that can convert mill waste into high value bioproducts for making platform chemicals, bioremediation agents and other end products.

Genome BC's investments in projects and platforms stimulate economic growth within BC. This yields not only employment opportunities and an increase in Gross Domestic Product (GDP), but also tax revenues for all levels of government. In addition, the positive impacts of Genome BC's investments are amplified as additional funds are leveraged from other sources — a direct correlation to our initial investment in projects and associated platforms.

² Life Sciences BC, 2018-2021 data, lifesciencesbc.ca, 06-07-23; Vancouver Board of Trade Report B.C. Life Sciences Update 2021: Building on a foundation of innovation.



These expenditures create economic impacts at direct, indirect and induced levels. Direct impacts arise from the initial spending on operating and project related activities, while indirect and induced impacts arise from linkages that exist with suppliers and service providers, as well as through the ripple effects of their spending within the economy. It is estimated that by the end of March 2026, Genome BC will have contributed \$5B to BC's GDP and enabled 51K jobs since its inception in 2000.3

As 'omic technologies mature, businesses and entrepreneurs within the life sciences sector find new ways to improve existing products or create new applications, solving societal challenges. The emerging satellite economies from these advancements encompass a range of supporting industries, stimulating job creation, encouraging innovation and contributing to economic growth. Genome BC has worked hard to help build capacity within our province by investing in people and businesses to develop, attract and retain world class talent and intellectual property.

"With the launch of the BC Life Sciences and Biomanufacturing Strategy, we are building on BC's reputation as a place where we value and invest in innovation - because it makes life better for people and cultivates a sustainable economy for everyone. Through the Stronger BC Economic Plan, we are maximizing our competitive advantage with our world-class talent and the innovators, entrepreneurs and anchor companies that will create high-quality jobs for British Columbians."

- Hon. Brenda Bailey, BC Minister of Jobs, Economic Development and Innovation, Province of British Columbia

Genome BC's support for the translation of research innovations into commercial success has helped promising BC based companies to grow, while generating returns that benefit all British Columbians. Early support for companies such as AbCellera and Precision NanoSystems aided them in achieving substantial growth, contributing to BC's economy and our preparedness for future public health emergencies. Genome BC's investments in Aspect Biosystems supported their commercialization initiatives. Based on the recent announcement of their partnership with Novo Nordisk, Aspect Biosystems will receive US\$75M in initial payments and up to US\$2.6B in future milestone payments, demonstrating the potential to see yet another powerhouse company in our life sciences ecosystem. These success stories underscore the importance of our investment in the life sciences industry and our role in fostering a globally competitive and attractive life sciences sector in BC.

Commercializing companies in BC

Genome BC helps foster collaboration between academia and industry, builds networks and attracts co-investment. To date we have helped advance 173 companies, supported BC job growth and contributed to international recognition of British Columbia for its genomics and life sciences capabilities. Some of the companies advanced through Genome BC's support of entrepreneurship and commercialization include:

































 $^{^{3}}$ 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

Since 2015, Genome BC has supported several startup accelerators and incubator programs with major universities through our Entrepreneurship Partnership Program. We now fund six accelerators across the life sciences, with innovations addressing human health and cleantech. In 2022/23, Genome BC funding for these BC based incubators and accelerators resulted in the advancement of 21 startup companies and training support for 144 entrepreneurs, reaching a total of 1,360 trainees since the program began.

Genome BC's Industry Innovation (I²) Program was launched with the specific goal of providing sustainable support for the commercialization of innovative life science technologies. This program offers early-stage capital of up to \$1.5M per company, which is matched by other public or private funding sources. The capital is provided in the form of debt, equity, and royalties, with a requirement for initiatives to demonstrate a clear pathway to commercialization. Once selected, Genome BC works closely with the chosen companies to establish this pathway and connect them with key industry players. The program aims to help companies reach significant milestones by linking a portion of the funding to their successful execution.

As of March 31, 2023, the total value of investment in companies funded through the I² Program had reached \$16.3M in 14 ventures. Since the program was created in October 2015, it has yielded \$41M in matching funds and \$158M in revenues and financings from investees. Companies that have been supported through the I² Program now have 281 employees, a net increase of 99 jobs from when Genome BC first invested in these BC-based companies.

"When we started out, combining state-of-the-art stem cell science with microfluidic 3D bioprinting technology to create implantable tissue therapeutics sounded like science fiction to many people. Genome BC was a key partner providing critical funding for our early technology development as we pioneered this new category and turned science fiction into reality. Aspect Biosystems is now a thriving biotechnology company fulfilling our strategy to partner with global industry leaders and create bioprinted tissue therapeutics that will transform how we treat disease."

— **Tamer Mohamed,** Chief Executive Officer, Aspect Biosystems

Aspect Biosystems and Novo Nordisk Partnership

Genome BC initially invested in Aspect Biosystems through its Industry Innovation I² Program in 2018 while the company was in its startup phase. In 2020, Genome BC further invested in Aspect Biosystems to advance research and development on an implantable pancreatic device as an alternative to treat Type 1 Diabetes. This project, as part of Genome BC's GeneSolve program, validated the feasibility of engineered tissue therapeutics as an approach to protect transplanted cells/tissues from being destroyed by the recipient's immune system.

Aspect Biosystems and Novo Nordisk recently entered a partnership and license agreement to develop bioprinted tissue therapeutics designed to replace, repair, or supplement biological functions inside the body with the aim of delivering a new class of truly disease-modifying treatments for diabetes and obesity.

The partnership will leverage Aspect's proprietary bioprinting technology and Novo Nordisk's expertise and technology in stem cell differentiation and cell therapy development and manufacturing. Aspect Biosystems will receive US\$75M in initial payments and up to US\$2.6B in future milestone payments.







Genomic research and innovation are rapidly advancing fields with enormous potential to revolutionize healthcare, agriculture, and environmental conservation. At the forefront of these advancements is the ability to harness the power of big data. Genome BC aims to unlock the full potential of genomics and drive economic, social, and environmental benefits. Genome BC's data-driven approach focuses on three key pillars.

First, the prioritization of data collection, management and integration to unlock the full potential of genomics, driving economic, social and environmental benefits. Second, fostering collaboration and engagement with stakeholders, ensuring effective data governance and facilitating data exploration beyond individual projects. And finally, maximizing the impact of genomics research by supporting the development of tools and technologies streamlining access to data and promoting responsible data management and stewardship.

Genome BC's data vision is aligned with the principles developed by the Organisation for Economic Cooperation and Development (OECD). Genome BC recognizes that publicly funded data are public goods that should be openly shared. Acknowledging that datasets resulting from Genome BC funded projects often have value beyond their original purpose, we actively promote interdisciplinary and translational collaboration, engaging multiple stakeholders, including funders, data providers, innovators, researchers and end-users.

Effective data governance is a priority for Genome BC, advocating for data sharing and establishing protocols for secondary data access. By doing so, Genome BC aims to foster a collaborative ecosystem that facilitates data exploration and utilization beyond individual projects.

Genome BC aims to identify the barriers and strategies necessary to achieve integration by linking health data, biobanks, genomics, and other platforms. One of Genome BC's key initiatives is developing and implementing data science activities within the British Columbia research ecosystem. This involves organizing working groups with key participants to create a jurisdictional roadmap for a comprehensive genomic ecosystem aligned with the Pan Canadian Health Data Strategy. This key initiative aims to identify the barriers and strategies necessary to accelerate by linking health data, biobanks, genomics and other platforms.



The Jurisdictional Health Data Working Group

Genome BC organized the roundtable discussion "Data-Driven Health Care Breakthroughs" for City Age's Data Effect series in April 2022 to discuss the path toward implementation of enhanced data sharing to accelerate BC's health research cluster. This discussion led to the creation of the Jurisdictional Health Data Working Group comprised

The objectives of the working group are:

- 1. Integrate siloed health data to improve opportunities for learning health systems and translational research.
- 2. Develop a roadmap for connecting existing health data, biobanks and omics data assets.
- 3. Support the translation of health research into clinical
- 4. Support mechanisms to disaggregate race-based data to combat systemic racism and apply principles of OCAP®

The working group aims to foster collaboration among stakeholders to improve access to health data and computational resources as well as enable the integration of health and genomics data. This will result in advanced prediction, diagnosis, monitoring and treatment methods for British Columbians and beyond. This collective approach will assist researchers in implementing these tools into patient care, ultimately reducing research costs and providing

"The Integrated Health Informatics Datalab will allow researchers and innovators from across the globe to access the real world evidence they need to support health care discoveries, product development and, ultimately, better patient care."

- Brian Simmers, CFO, VP Health Informatics and Corporate Development and Head of PHC Ventures, Providence Health Care





Collaboration and coordination are also critical aspects of Genome BC's data strategy. The organization actively engages with provincial, federal, and international funding agencies to promote data sharing, harmonize policies, and maximize the global impact of genomics research.

Genome BC also invests in developing tools and technologies that enable efficient data collection, storage, management, analysis and linkage. A notable example is the launch of the Data Access, Integration and Analysis Program (DAIA) in June 2021, utilizing PHC Ventures' Integrated Health Informatics Datalab (IHID). This secure environment enables the integration of clinical, imaging and genomics data as well as provides researchers with analytical tools. Genome BC allocated \$1M to fund four projects that aim to test the IHID system and enable researchers to provide valuable feedback for improvement. These projects have a significant focus on improving patient care, such as:

- predicting fibrotic interstitial lung disease progression by integrating environmental and genomic risk factors,
- utilizing genetics to assess cardiovascular disease risk and guide treatment,
- 3. identifying molecular surrogates for optimal immunosuppression in heart transplantation
- 4. developing a blood test to assess the risk of heart failure in hereditary hypertrophic cardiomyopathy patients.

"Genome BC's DAIA program gives us the opportunity to test whether the IHID platform is suitable for our clinicians to re-analyze medical imaging data and aggregate it with clinical data for research and patient monitoring purposes. We are hopeful that this system will provide a more efficient and less error-prone way of collecting patient records."

— Dr. Zachary Laksman, Assistant Professor, Department of Medicine and the School of Biomedical Engineering, University of British Columbia, Director of the St. Paul's Hospital Atrial Fibrillation Clinic and Director of the St. Paul's Hospital Inherited Arrhythmia Program Embracing responsible data management and stewardship, Genome BC adheres to principles such as the FAIR Guiding Principles⁴, the First Nations Principles of OCAP™5, and the CARE⁶ Principles for Indigenous Data Governance. Genome BC's Data Science team organizes the Data Literacy webinar series to highlight these principles as well as to bring national and international experts together to help deepen our understanding of different data related initiatives, standards and resources.

Genome BC actively bridges the gap between research, healthcare, and environmental applications by supporting robust data governance models and harnessing the power of machine learning approaches. In doing so, we actively engage in collaborative partnerships with the private sector and industry experts to drive innovation, optimize data utilization and accelerate solutions and strategies that meet diverse user needs.

Genome BC continues to actively engage with policymakers to encourage incorporating data, knowledge and know-how into decision support tools. The organization seeks to inform policy development and drive informed decision-making processes by providing evidence based insights.

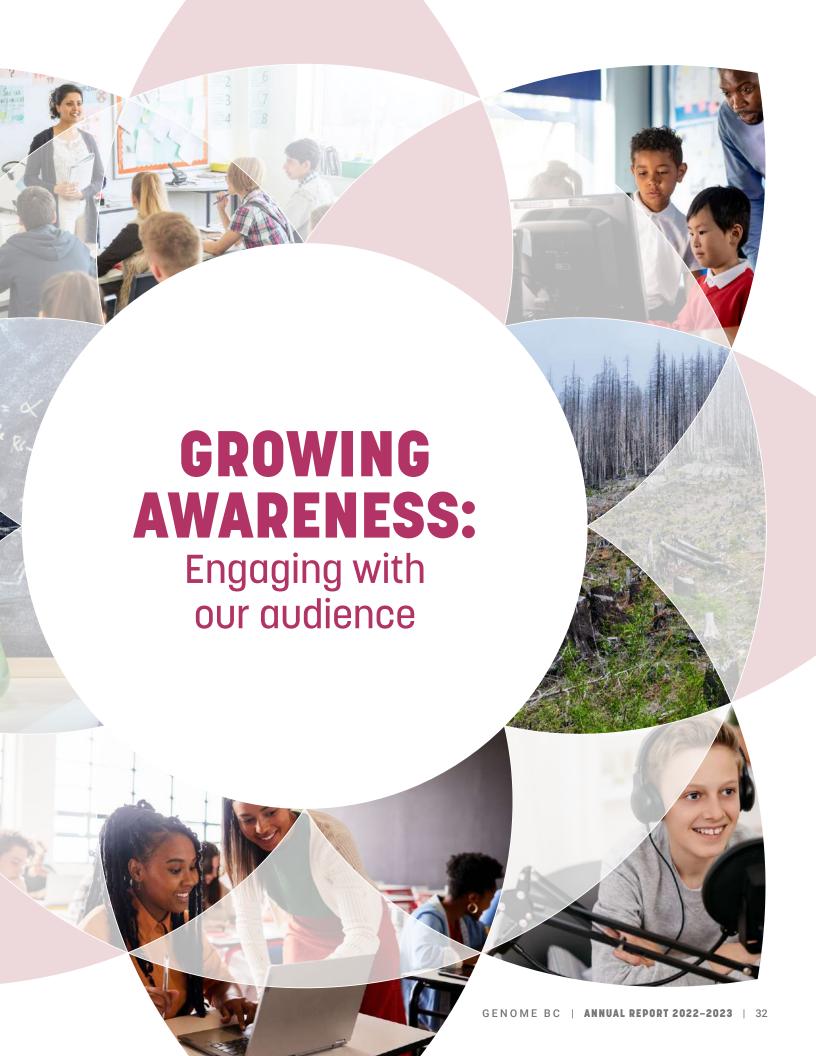
As a cross cutting pillar of Genome BC's research and innovation mandate, this data strategy is vital in empowering the organization's pursuit of advancements in the health, agrifoods, and natural resources sectors. By championing data driven approaches and fostering collaboration, Genome BC strives to unlock the transformative potential of genomics and create a better future for British Columbia and beyond.

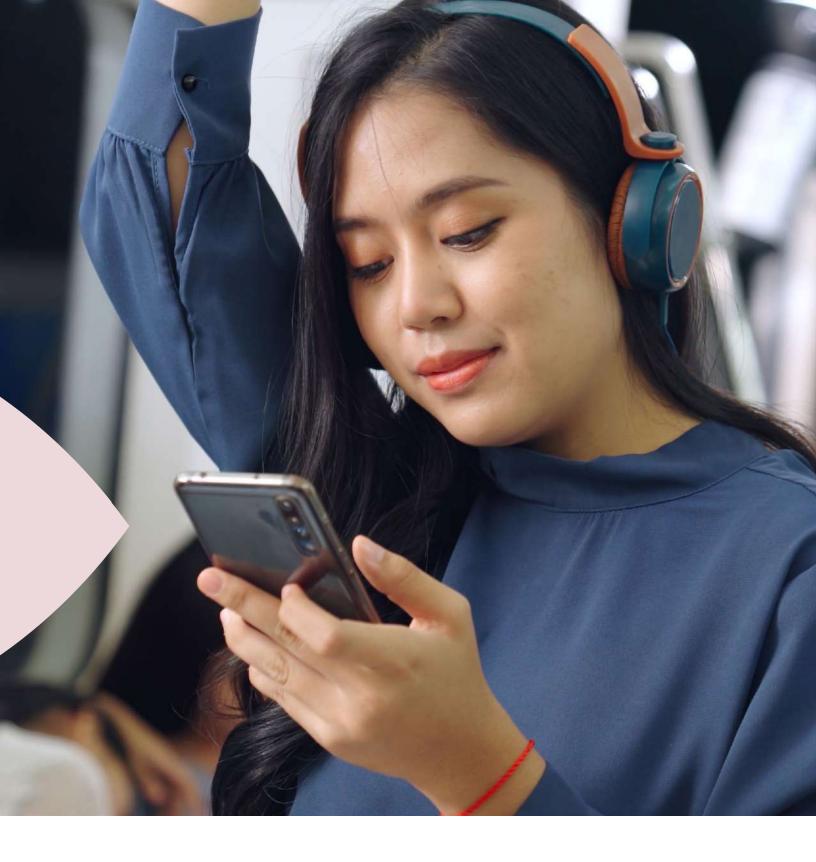


⁴ FAIR Guiding Principles are findability, accessibility, interoperability and reusability.

⁵ The First Nations Principles of OCAP are ownership, control, access and possession.

⁶ The CARE Principles for Indigenous Data Governance are collective benefit, authority of control, responsibility and ethics.





In our ever evolving world, the influence of science reaches far beyond laboratory walls. Science permeates every facet of our lives, revealing an infinite array of applications in the complex tapestry of the natural world that surrounds us. It fuels the technology that powers our smartphones, provides the colours on our walls and heals our bodies.



"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 attitudes towards an important, indemand sector."

Morgan Whitehouse, SD73 District Science Coordinator

Knowledge is crucial in our economy today and its importance is increasing due to the speed at which it spreads. The success of our economy relies on the relationship between science, technology, and innovation, which emphasizes the importance of education and lifelong learning. It is essential for everyone to have a basic understanding of math and science principles. Scientific literacy enables us to develop critical thinking skills which helps us solve problems and make informed decisions. This knowledge is useful beyond just academic settings and impacts how we interact with products, choose careers, and handle everyday challenges.

Genome BC's outreach activities aim to explore the wonders of science and its boundless potential. The outputs of our efforts endeavour to create an inspiring odyssey that will ignite curiosity and demonstrate the extraordinary role science plays in shaping our lives. Public outreach activities are meant to inform, educate and excite - making science relevant to all - with the aim of driving curiosity and opening a gateway to a world of endless possibilities.

The 'Nice Genes!' podcast started as an idea and has since flourished into an award-winning show with a large and diverse audience. One of the goals was to broaden our audience, engaging young women in Canada and promoting scientific curiosity. With over half of its listeners under 34 years old, it boasts a diverse and predominantly female audience. 85% of its listeners are from Canada.

As the podcast matured from a promising seedling in its first season to a robust sapling in its second, growth and engagement continued. Its audience listened to, on average, 25% more of the episodes than the industry standard, which is a clear indication that the listeners have engaged with the fascinating stories host, Dr. Kaylee Byers, shares in each episode. Ideas for episode topics came from the podcast team, Education, and Genomics and Society teams, to ensure that these topics were of interest to the general public, beneficial for teachers to use in the classroom, engaging for school students, presented in a balanced way, and highlighted the depth and breadth of genomic research.

Podcasts have been enriched through the addition of support materials including scientist profiles and 'Learn-a-Long' sheets to align with curriculum and make it easy for teachers to integrate into their lesson plans, providing a comprehensive and impactful learning experience for students.

This year, the Education team also collaborated with the Genomics and Society team to develop engaging classroom activities that connect students with the world of genomics research. One of these activities is the "Genomics & Society Role Playing Game." This game immerses students in a topic of debate, encouraging them to adopt different personas and perspectives to explore the impacts of genomics on society, industry, government, and science. By incorporating social and emotional learning, this workshop contributes to the BC curriculum and expands entry points for genomics learning. Genome BC's public-facing events also allowed for engagement with diverse audiences. The Genomics Forum 'Climate Emergency: Smart Solutions for a Sustainable Future' held in May 2022 and the Annual Don Rix Distinguished Keynote Address 'Biodiversity Conservation in the Age of Extinction', by Dr. Carolyn Hogg, held in November 2022 each attracted large audiences who were keen to hear about developments in conservation and how genomics is helping the planet. The success of the Genomics Forum inspired the 'Nice Genes!' team to focus Season Two of the podcast on conservation and allowed for the successful cross pollination of topics and guests. Additionally, the Communications team was able to find additional ways to share the research of some podcast guests, including featuring cutting-edge elephant research in a short series of videos to share with the public and school students, which were designed to bust myths about genomics.

As Genome BC continues to navigate the ever changing digital landscape, staying on top of the latest trends and trying new approaches is key to their continued growth and development. Collaboratively, the Communications, Education, and Genomics and Society teams have utilized data to identify gaps in their outreach and developed new and engaging content, which has led to increased engagement with their audiences. The team looks ahead to the coming year with anticipation and excitement, ready to continue collaborative efforts that maximize the teams' talents and ideas.

Nice Genes is recognized for excellence, but the real winners are our listeners

The award winning "Nice Genes!" podcast highlights stories of how genomics is influencing the world around us while discussing issues that the audience cares about, like fighting climate change and promoting racial justice. The show's focus is about how genomic science can help solve the big problems facing humanity.

Each episode takes an accessible, issues-driven approach to our science storytelling. We chose a fun "nerdist" as a host. Dr. Kaylee Byers is an experienced podcaster and scientist, and a self-described "rat detective" (Her genomic research focuses on rats and their habitats).

The biggest challenge in producing the show comes from how to talk about genomic science. Most people have a limited understanding of genomics, which we saw as a great opportunity because we could introduce them to the many surprising ways genomics is changing our world - from health to environment to crime fighting.

From the start, we knew we wanted to build a diverse and inclusive show. This is an important consideration in the selection of co-hosts and guests. We made sure to discuss how genomics has been received in different cultural communities, depending on their history of colonization and their access to genetic data.

During this past season, many episodes dealt with environmental issues. We felt we were combatting the audience's despair and resultant apathy in the face of global warming. We handled this by choosing stories about people "doing science" on constructive projects aimed at mitigating the harms caused by global warming. We also used humour and even terrible puns - okay, especially terrible puns - to keep the tone of the show as upbeat and constructive as possible.



"Thank you for your support and the positive impact you have had on students interested in the sciences like me. I am grateful to you for encouraging me to continue pursuing research and my passion for biological sciences as well as striving for scientific excellence."

- Emily Pan, Winner, Genome British Columbia award from Greater Vancouver Regional Science Fair







4,102 Students Engaged



Teachers Engaged



Partnership Activations



Education Resource Downloads



Volunteer Face to **Face Hours**



Net Promoter Score



51%*

of all BC communities (cities, district municipalities, towns and villages) are reached by Genome BC programs)

*Total is cumulative since Genome BC's inception in 2000.

PUBLIC ENGAGEMENT AND OUTREACH



139,057 Website Visitors



556,994 Media Views and Podcast listens



1,551 Visitors to corporate events



Unique Media **Stories**

SOCIAL MEDIA HIGHLIGHTS





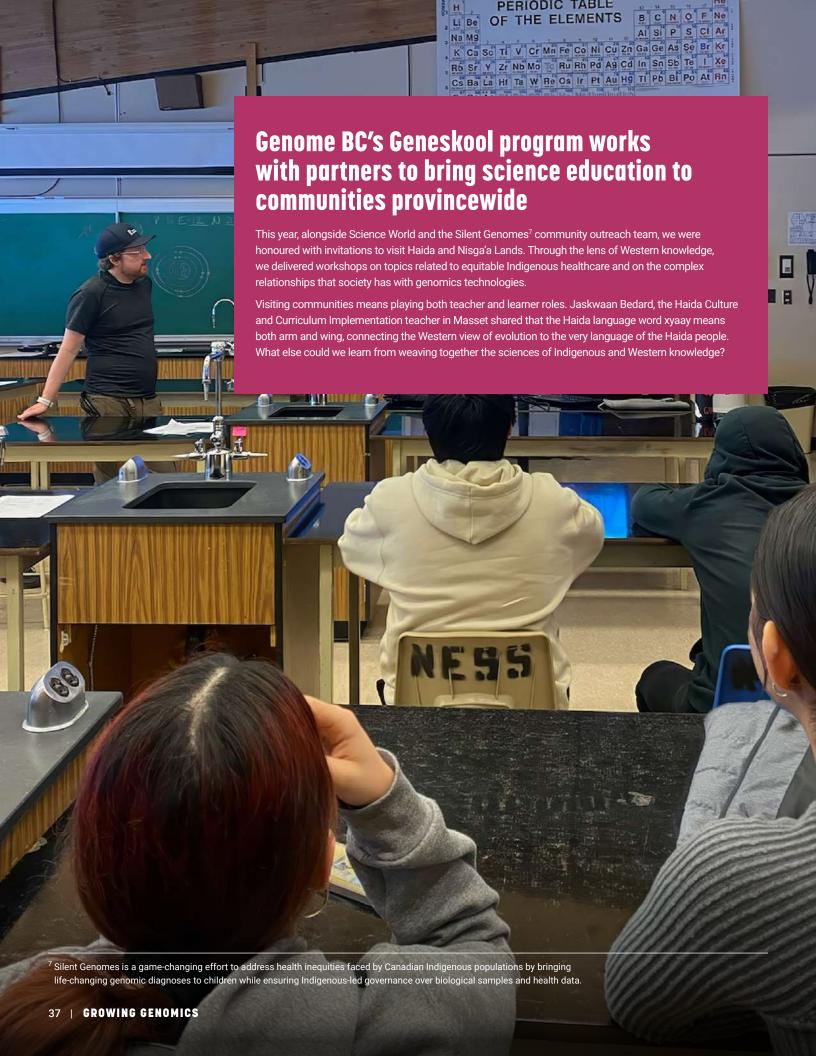






30,038 Followers

51,072 Engagements



2022 - 2023 PROJECTS AND FUNDING

Since 2000, Genome BC has led genomics innovation on Canada's West Coast and facilitated the responsible integration of genomics into society. We manage a cumulative portfolio of \$1.3 billion* in over 525 research projects, technology platforms and innovation initiatives.

We thank our funding partners, including the Province of British Columbia, the Government of Canada through Genome Canada and Pacific Economic Development Canada, and project co-funders.















SOCIO-ECONOMIC IMPACT



Economic Impact to BC's GDP**

\$4.9B



Companies Advanced

173



Jobs Created**

51,400



Direct Co-investment Attracted

\$1.0B



Partnerships

1,202



Patent Applications[†]

810



Applications Demonstrated, of which 126 are products and services advanced



Scientific Publications

3,957



Covid-related applications demonstrated and products and services advanced

Figures are cumulative as of March 31, 2023.

- * Includes projects not captured in the categories noted.
- ** Economic and Social Impact Analysis, MNP LLP, 2022.
- † All countries including provisional.

MESSAGE FROM THE PRESIDENT **AND CEO**

We've come a long way since the completion of the human genome mapping project 20 years ago and we are now able to use genomics to improve human health and better understand the ecological health and diversity of our planet.

Over the last two decades, Genome BC has embarked on a remarkable journey of genomics evolution. Genome BC's strategy is built upon BC's world class genomics research capabilities - fuelling the fastest growing life sciences sector in the country. In addition to continuing our investments in research and innovation, we're increasingly looking to accelerate the adoption and deployment of genomics across many economic sectors. Our partners in academia, government and industry are key to successfully delivering our strategy.

We are entering a new era where our collective efforts will drive positive change and shape the future of healthcare, food security and the sustainability of BC's natural resources while also adding to societal well being. Genome BC's responsibility is to foster an environment that embraces equity, diversity and inclusion within our organization and the ecosystem we support. We also play an important role in reducing and eliminating the inequities that can arise in research and in who benefits from the outcomes.

We recognize the importance of Indigenous perspectives and collaboration with Indigenous communities in genomics research. By incorporating ancestral Indigenous knowledge and partnering with these communities, we seek to develop genomic solutions that honour cultural perspectives and address disparities.

Our adaptability enables us to navigate a fast-changing world and stay ahead of emerging challenges. Genome BC's response to the pandemic demonstrated agility and commitment through rapid and responsive actions. We quickly fast tracked support to researchers whose work significantly helped the public health sector to track the virus, develop vaccines and produce new therapeutics.

Real impact takes a collaborative effort - this is at the heart of our approach. Through productive partnerships, we're seeking solutions to pressing global problems in public health, climate and conservation, and food security. This year, we partnered with the Investment Agriculture Foundation of BC to launch eight projects through our Genomics Innovation for Regenerative Agriculture, Food, and Fisheries Program (GIRAFF), which exemplifies how we are using relationships and resources to improve the sustainability and resilience of BC.

Genome BC's new data strategy seeks to unlock the power of data by improving the collection, management, storage, sharing and analysis of data from our projects. To this end, we've rolled out four new projects under a new partnership with Providence Health Care Ventures that will help advance medical research and patient care. We became the first organization in Canada to adopt protocols.io, a secure platform for developing and sharing improved, reproducible research methods.

Genome BC's partnership focus extends to our early support of companies in the life sciences industry. Our investments in new technologies and early-stage companies have contributed to the growth of local anchor companies like AbCellera, Precision Nanosystems and Aspect Biosystems. These success stories underscore the importance of our investment in the life sciences industry and our role in fostering a globally competitive and attractive life sciences sector in BC.

Education and public engagement remain vital. We are dedicated to promoting genomics literacy and engaging the public. Programs like Geneskool and our award winning podcast, "Nice Genes!" are instrumental in increasing awareness and understanding about the impacts genomics is having on society.

I want to thank the Government of British Columbia, the Government of Canada through Genome Canada and Pacific Economic Development Canada for their unwavering and ongoing support that has significantly contributed to BC's emergence as a world-class region of scientific genomics excellence.

In my first year as President and CEO, I am honoured and privileged to work and learn alongside our diverse and talented board, chaired by Peggy Johnston, and I look forward to the year ahead. To the exceptional team at Genome BC – thank you for making my first year a rich learning experience and for your tremendous hard work and dedication. A special thank you to John Shepherd for devoting 11 years to our Board, two of those as Chair your commitment and leadership are unparalleled. And thank you to all our partners and stakeholders for their ongoing support of Genome BC.

Together, we will harness the power of genomics to improve lives, protect the environment and shape a better future. I am excited about the possibilities ahead and invite you to join us on this remarkable journey.

SUZANNE GILL

MESSAGE FROM THE BOARD CHAIR



Over the past twenty years, the field of genomics has experienced immense transformation and growth, transitioning from a scientific curiosity to an impactful science. Technological advancements, swift discoveries and cost reductions have made the application of genomics across diverse fields increasingly practical. Genomics continues to shape our present and our future and holds immense potential to help address a broad spectrum of challenges that exist within healthcare, agriculture, climate change and conservation. Each research advance amplifies our appreciation of the promise of "omics" and fuels additional, innovative applications of genomics tools. We strive to apply these tools to find solutions for challenges that matter to the people of British Columbia.

As a driving force behind genomics research and innovation, Genome BC's strength derives from our ability to foster connections among individuals and organizations. Genome BC remains committed to its role as a catalyzer and ecosystem builder. Along with our partners, we will leverage new opportunities to propel the ecosystem toward unprecedented milestones - with each step building upon the successes that have delivered sustainable social and economic benefits.

This past year ushered in a new era of leadership for Genome BC, offering a fresh and impassioned voice for innovation. Suzanne Gill brings a wealth of experience within Canada's innovation ecosystem. Her proven track record includes forging and enhancing relationships and strengthening partnerships with stakeholders and governments. These efforts will further solidify Genome BC's position as a pivotal driver of British Columbia's bioeconomy, optimizing impact for British Columbia, Canada and beyond.

Our sincere gratitude extends to the Government of British Columbia, along with our funding partners and stakeholders across the ecosystem, for their collaboration and validation of our work to date. The trust placed in us over the years reinforces our determination to continue delivering exceptional value and impact across all sectors

In closing, I extend my heartfelt appreciation to my fellow Directors, whose expert guidance and oversight continue to guide and enhance Genome BC's work. I would also like to express gratitude to our dedicated staff and executive team, whose expertise, passion and steadfast commitment have been essential to Genome BC's accomplishments and have propelled the growth of genomics and innovation in British Columbia.

DR. MARGARET (PEGGY) JOHNSTON

Magat John

INDEPENDENT AUDITORS' REPORT

TO THE BOARD OF DIRECTORS OF **GENOME BRITISH COLUMBIA**

OPINION

We have audited the financial statements of Genome British Columbia (the Entity), which comprise:

- the Statement of Financial Position as at March 31, 2023
- the Statement of Operations and Changes in Net Assets for the year then ended
- the Statement of Cash Flows for the year then ended
- and Notes to Financial Statements, including a summary of significant accounting policies

(hereinafter referred to as the "financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Entity as at March 31, 2023, and its results of operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

BASIS FOR OPINION

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the "Auditors' Responsibilities for the Audit of the Financial Statements" section of our auditors' report.

We are independent of the Entity in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

RESPONSIBILITIES OF MANAGEMENT AND THOSE CHARGED WITH **GOVERNANCE FOR THE FINANCIAL STATEMENTS**

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Entity's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Entity's financial reporting process.

AUDITORS' RESPONSIBILITIES FOR THE **AUDIT OF THE FINANCIAL STATEMENTS**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional scepticism throughout the audit.

Identify and assess the risks of material misstatement of the financial statements. whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Entity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

LPMG LLP

CHARTERED PROFESSIONAL ACCOUNTANTS

Vancouver, Canada June 9, 2023

FINANCIAL STATEMENTS

Statement of Financial Position (Expressed in Canadian Dollars) March 31, 2023, with comparative information for 2022 2022 2023 **Assets** Current assets: Cash \$ 1,675,621 1,008,897 Short-term investments (notes 3 and 4) 153,837,841 90,929,411 Funding receivable 79,000,000 128,784 37,715 Other receivables (note 5) Project advances 2,575,943 5,347,847 Prepaid expenses 190,993 212,218 \$ 158,409,182 \$ 176,536,088 Capital assets (note 6) 1,273,177 1,545,915 \$ 159,682,359 \$ 178,082,003 **Liabilities and Net Assets** Current liabilities: Accounts payable and accrued liabilities (note 7) \$ 6,309,240 6,268,866 Deferred lease inducement 340,838 416,580 Deferred contributions: Future expenses (note 8) 151,759,104 169,850,642 Capital assets (note 9) 1,273,177 1,545,915 178,082,003 \$ 159,682,359 \$ Net assets 159,682,359 \$ 178,082,003

Commitments (note 10)

See accompanying notes to financial statements.

Approved on behalf of the Board:

MARGARET JOHNSTON

Magat John

Director

LENARD BOGGIO Director

Year ended March 31, 2023, with comparative information for 2022				
		2023		2022
Revenues:				
Amortization of deferred contributions related to future expenses (note 8)	\$	27,536,805	\$	28,806,846
Amortization of deferred contributions related to capital assets (note 9)		393,821		341,330
Investment income (note 3)		2,547,865		2,476,812
Recoveries from commercialization projects (note 4)		3,122,731		2,720,579
• • • • •	\$	33,601,222	\$	34,345,567
Expenses:				
Corporate programs and management	\$	9,571,010	\$	8,183,454
Project expenditures		23,636,391		25,820,783
Depreciation		393,821		341,330
	\$	33,601,222	\$	34,345,567
			.	
Excess of revenues over expenses, being net assets, beginning and end of year	\$	<u>-</u>	\$	
See accompanying notes to financial statements.				
Statement of Cash Flows (Expressed in Canadian Dollars)				
Year ended March 31, 2023, with comparative information for 2022				
		2023		2022
Cash provided by (used in):				
Operations:				
Excess of revenues over expenses	\$	-	\$	_
Items not involving cash:				
Depreciation		393,821		341,330
Amortization of deferred contributions related to future expenses (note 8)		(27,536,805)		(28,806,846)
Amortization of deferred contributions related to capital assets (note 9)		(393,821)		(341,330)
Amortization of deferred lease inducement		(75,742)		(75,742
Unrealized losses on short-term investments		5,159,422		5,442,534
Funding (note 8)		9,566,350		92,376,623
Change in operating assets and liabilities:				
Funding receivable		79,000,000		(64,000,000)
Other receivables		(91,069)		14,029
Project advances		2,771,904		(503,433)
Prepaid expenses		21,225		41,982
Accounts payable and accrued liabilities		40,374		(1,915,874)
Deferred lease inducement		-		530,193
	\$	68,855,659	\$	3,103,466
Investments:				
Proceeds from sale of short-term investments	\$	16,506,371	\$	16,859,673
Purchase of short-term investments		(84,574,223)		(20,817,128)
Purchase of capital assets		(121,083)		(713,634
	\$	(68,188,935)	\$	(4,671,089
harmana / danmana \ in anah	\$	666,724	\$	(1,567,623
Increase (decrease) in cash	Ψ	000,72.	Ψ.	. , ,

See accompanying notes to financial statements.

Cash, end of year

1,675,621

\$

\$

1,008,897

NOTES TO FINANCIAL STATEMENTS

1. Operations:

Genome British Columbia (the Corporation) was incorporated on July 31, 2000 under the Canada Corporations Act and continued under the Canada Not-For-Profit Corporations Act as a not-for-profit organization and is exempt from income and capital taxes. The Corporation has the following objectives:

- (a) develop and establish a coordinated approach and integrated strategy in British Columbia to enable British Columbia to become a world leader in selected areas of genomic and proteomic research and innovation, including agriculture, aquaculture, environment, forestry and human health, among others, by bringing together universities, research hospitals, other research centres and industry, as well as government and private agencies for the benefit of British Columbia;
- (b) participate in national approaches and strategies to strengthen genomics research capabilities in Canada for the benefit of all Canadians;
- (c) maintain a genome centre in British Columbia to ensure that researchers can undertake research and development projects offering significant socio-economic benefits to British Columbia and Canada, to provide access to necessary equipment and facilities, and to provide opportunities for training of scientists and technologists;
- (d) establish a contractual relationship with Genome Canada, and contractual and collaborative relationships with others (including private and voluntary sectors and federal and provincial governments) in order to provide financial and personnel resources for the Corporation;
- (e) address public concerns about genomics research through the organization of intellectual resources regarding ethical, environmental, legal and societal issues related to genomics;
- (f) increase public awareness of the need for genomics research and of the uses and implications of the results of such research, thereby helping Canadians understand the relative risks and rewards of genomics;
- (g) leverage the organization's speed and agility to provide emerging issues funding that enables researchers and innovators to address previously unforeseen challenges in British Columbia; and
- (h) support entrepreneurial, commercialization and innovation activities that help to grow the life sciences sector in British Columbia.

2. Significant accounting policies:

(a) Basis of presentation:

These financial statements have been prepared in accordance with Canadian Accounting Standards for Not-for-Profit Organizations (Accounting Standards for NPOs).

(b) Short-term investments:

Short-term investments are recorded at fair value with gains and losses recorded in the statement of operations and changes in net assets in the period in which they arise. Short-term investments are comprised of a portfolio of funds managed by investment professionals.

(c) Project advances:

Project advances are comprised of amounts provided by the Corporation to approved research projects and platforms, which have not yet been spent.

(d) Capital assets:

Capital assets are initially recorded at cost. Depreciation is provided using the straight-line method as follows:

Asset	Years
Furniture and fixtures	5
Computers and software	3
Telecommunications equipment	5
Leasehold improvements	Lower of useful life and remaining lease term

(e) Revenue recognition:

The Corporation follows the deferral method of accounting for contributions.

Externally restricted contributions:

Deferred contributions related to expenses of future periods represent unspent externally restricted funding and related investment income, which are for the purposes of providing funding to eligible recipients and the payment of operating and capital expenditures in future periods. Externally restricted contributions for expenses of a future period and related investment income are deferred and recognized as revenue in the year in which the related expenses are incurred. Externally restricted contributions for the purchase of capital assets are initially recorded as deferred contributions related to future expenses, and transfer to and recorded as deferred contributions related to capital assets when the amounts have been spent on capital assets. Deferred contributions related to capital assets are amortized to revenue in the statement of operations and changes in net assets using the same methods and amortization rates of the related capital assets.

Unrestricted contributions:

Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

2. Significant accounting policies (continued):

Commercialization projects:

The Corporation seeks to drive commercialization through partnerships with early stage companies. The Industry Innovation Program (the "Program") was established for the purpose of investing in companies involved in early stage research and development, where technologies have not yet reached commercialization. The value of any underlying security on these investments is limited. The Corporation expenses all amounts invested in these projects as advanced. Recovery of amounts invested are recorded as revenue when the funds are received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured. The Program balance consists of deferred contributions for investment, interest and royalties earned, gains less losses on investments and recoveries from investments less new investment.

The preparation of financial statements requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities and the reported amounts of revenues and expenses. Areas requiring the use of management's estimates relate to the determination of accruals for project expenditures and the recoverable amounts of investments in commercialization projects. Accordingly, actual results could differ from these estimates.

(h) Valuation of long-lived assets:

Management reviews the carrying amount of capital assets for impairment whenever events or changes in circumstances indicate that the asset no longer contributes to the Corporation's ability to provide services, or that the value of future economic benefits or service potential associated with the asset is less than its carrying amount. If such conditions exist, an impairment loss is measured and recorded in the statement of operations and changes in net assets at the amount by which the carrying amount of the capital asset exceeds its fair value or replacement cost.

Deferred lease inducement:

Tenant inducement received associated with leased premises is deferred and amortized on a straight-line basis over the term of the lease.

The financial information of Genome British Columbia Foundation, a not-for-profit entity that is commonly controlled by the Corporation, is not consolidated but is disclosed in these financial statements.

(k) Financial instruments:

Financial instruments are recorded at fair value on initial recognition. All financial instruments are subsequently measured at cost or amortized cost, unless management has elected to carry the instruments at fair value. The Corporation has elected to carry its short-term

At period-end, the Corporation assesses whether there are any indications that a financial asset measured at cost or amortized cost may be impaired. Financial assets measured at cost include funding receivable and other receivables. If there is an indicator of impairment. the Corporation determines if there is a significant adverse change in the expected amount or timing of future cash flows from the financial asset. If there is a significant adverse change in the expected cash flows, the carrying value of the financial asset is reduced to the highest of the present value of the expected cash flows, the amount that could be realized from selling the financial asset or the amount the Corporation expects to realize by exercising its right to any collateral. If events and circumstances reverse in a future period, an impairment loss will be reversed to the extent of the improvement, not exceeding the initial impairment charge.

Foreign exchange:

The Corporation's monetary assets and liabilities denominated in foreign currencies are translated into Canadian dollars using exchange rates in effect at the statement of financial position date. Revenue and expense items are translated at the rate of exchange prevailing on the date of the transaction. Foreign exchange gains and losses are included in the statement of operations and changes in net assets.

3. Short-term investments:

The Board of Directors has overall responsibility for the oversight of the Corporation's short-term investments. The Board has established an Investment Committee, which is responsible for developing and monitoring the Corporation's investment policy. The overall objectives of the Corporation's investment policy are to achieve security of principal that ensures a return of the capital invested, to maintain the liquidity necessary to meet the cash flow requirements of the Corporation and to maximize the rate of return without affecting liquidity or incurring

The Corporation's short-term investments are comprised of a portfolio of funds and other investments. The portfolio consists of investments in fixed income funds and Canadian and international equity funds. The portfolio is managed by independent investment professionals in accordance with the Corporation's investment policy. All short-term investments are measured at fair value. The Corporation's short-term investments are subject to interest rate, market and liquidity risks.

Both the risk of significant changes in interest rates and the risk of significant changes in market prices are mitigated by the Corporation's policy that permits its portfolio managers to change the level of investment in the funds at short notice and the fact that interest earned on the portfolio is reinvested monthly at prevailing rates. The Corporation limits exposure to liquid asset credit risk through maintaining its short-term investments with high-credit quality financial institutions.

3. Short-term investments (continued):

The Corporation's short-term investments are as follows:

	2023	2022
Fixed income funds	\$ 90,953,451	\$ 52,521,065
Canadian equity funds	16,574,100	10,288,507
US equity funds	30,565,742	18,933,979
International equity funds	15,744,548	9,185,860
	\$ 153,837,841	\$ 90,929,411

The fixed income funds invest in a mixture of bonds and debentures with a minimum average credit rating of BBB. The Canadian and international equity funds invest in a mixture of Canadian, U.S. and international equities. Fair values of the Corporation's portfolio investments are based on quoted bid price at the reporting date.

In April, 2022 the Corporation obtained funding of \$78,000,000, which was recorded as receivable as at March 31, 2022, from the Province of BC to support its mandate and strategic plan. Upon receipt, these funds were invested in accordance with the Corporation's investment policy.

The investment income is comprised of the following:

	2023	2022
Interest income	\$ 8,226,763	\$ 6,599,502
Realized (losses) gains	(605,102)	1,230,354
Unrealized losses	(5,159,422)	(5,442,534)
Other	85,626	89,490
	\$ 2,547,865	\$ 2,476,812

4. Industry Innovation Program:

	2023	2022
Balance, beginning of year	\$ 8,154,679	\$ 7,484,100
Funding from Province of BC	3,000,000	_
Recoveries from commercialization projects	3,122,731	2,720,579
Investments in commercialization projects	(3,632,000)	(2,050,000)
Balance, end of year	\$ 10,645,410	\$ 8,154,679

Changes in investing activities since inception of the Program are as follows:

	Investment made (redeemed)	Amount
Total investment fund		\$ 20,000,000
Investments made	19	(16,344,500)
Investments recovered	(5)	4,650,000
Interest received		846,779
Royalties received		1,493,131
Balance, end of year		\$ 10,645,410

The program balance of \$10,645,410 is included in deferred contributions and is invested with the Corporation's other short-term investments.

Investments in commercialization projects consist of loans which are secured by a general security interest in all assets of the companies. Interest accrues on the outstanding balances at prime plus 2.5-3% compounded annually. Repayment of principal and accrued interest over a two year period commences after the earlier of (a) an agreed annual gross revenue threshold; (b) a change of control of the company; or (c) a date that is four years from the date of the loan was advanced. The Corporation may also receive royalty and other payments contingent upon the success of the investee's commercialization efforts and the balance of the loan outstanding.

In June, 2022, the Corporation recovered an amount of \$1,300,000 from an investee company as partial repayment of the loan principal of \$1,500,000.

In September, 2022, an amount of \$1,297,731 was recovered from an investee company. The amount recovered from this project included the loan principal and interest accrued in accordance with the loan agreement.

In December, 2022, an amount of \$525,000 was recovered from an investee company as settlement of a royalty obligation.

5. Other receivables:

	2023	2022
Sales tax	\$ 35,045	\$ 31,633
Other accounts receivables	93,739	6,082
	\$ 128,784	\$ 37,715

6. Capital assets:

March 31, 2023	Cost	Accumulated depreciation	Net book value
Furniture and fixtures	\$ 350,720	\$ 155,198	\$ 195,522
Computers and software	588,497	362,234	226,263
Telecommunications equipment	28,205	16,778	11,427
Leasehold improvements	1,216,784	376,819	839,965
	\$ 2,184,206	\$ 911,029	\$ 1,273,177
March 31, 2022	Cost	Accumulated depreciation	Net book value
Furniture and fixtures	\$ 315,439	\$ 92,945	\$ 222,494
Computers and software	520,179	233,246	286,933
Telecommunications equipment	28,205	12,328	15,877
Leasehold improvements	1,211,864	191,253	1,020,611
	\$ 2,075,687	\$ 529,772	\$ 1,545,915

During the year ended March 31, 2023, fully amortized capital assets of \$12,564 (March 31, 2022 - \$98,137) were removed from the Corporation's accounting records.

7. Accounts payable and accrued liabilities:

	2023	2022
Accounts payable	\$ 144,705	\$ 209,643
Accrued liabilities – projects	5,046,092	4,961,285
Accrued liabilities – others	1,118,443	1,097,938
	\$ 6,309,240	\$ 6,268,866

Included in accrued liabilities as at March 31, 2023 are government remittances payable of \$30,151 (March 31, 2022 - \$27,718) relating to payroll and health taxes.

8. Deferred contributions related to future expenses:

The Corporation receives funding from Genome Canada, the Province of British Columbia and from other sources to be held, administered and distributed in accordance with the related funding agreements between the Corporation and other parties (note 10).

Deferred contributions related to expenses of future periods represent these unspent externally restricted funds, which are for the purposes of providing funding to eligible recipients and the payment of operating and capital expenditures in future periods. The changes in the deferred contributions balance for the year are as follows:

	2023	2022
Balance, beginning of year	\$ 169,850,642	\$ 106,956,628
Funding received or receivable during the year:		
Genome Canada	9,504,850	13,376,076
Province of British Columbia	_	78,000,000
Pacific Economic Development Canada	61,500	_
Industry Partners	_	1,000,000
Other	_	547
	\$ 179,416,992	\$ 199,333,251
Lease inducement amortization	_	37,871
	\$ 179,416,992	\$ 199,371,122
Less:		
Amount amortized to revenue	\$ (27,536,805)	\$ (28,806,846)
Amount transferred to fund capital assets purchased during the year (note 9)	(121,083)	(713,634)
	\$ (27,657,888)	\$ (29,520,480)
Balance, end of year	\$ 151,759,104	\$ 169,850,642

9. Deferred contributions related to capital assets:

Deferred contributions related to capital assets represent the unamortized amount of contributions received for the purchase of capital assets. The amortization of such contributions is recorded as revenue in the statement of operations and changes in net assets.

The changes in the deferred contributions related to capital assets balance for the year are as follows:

	2023	2022
Balance, beginning of year	\$ 1,545,915	\$ 1,173,611
Funding spent on capital asset purchases	121,083	713,634
	\$ 1,666,998	\$ 1,887,245
Less amount amortized to revenue	(393,821)	(341,330)
Balance, end of year	\$ 1,273,177	\$ 1,545,915

10. Commitments:

(a) Funding:

(i) Genome Canada:

The Corporation enters into funding agreements with Genome Canada (the agreements). In accordance with these agreements the Corporation secures on an on-going basis cash or cash equivalent commitments from other parties representing at least 50% of the total costs of the projects covered by the agreements. In addition, Genome Canada agrees to disburse an amount only up to the amount of the formal commitments from other parties. However, Genome Canada may provide funding notwithstanding the fact that formal commitments from other parties have not yet been secured. Genome Canada has also agreed that funds, provided in good faith, where commitments from other parties have not yet been secured, shall not be reimbursable to Genome Canada.

In accordance with each respective agreement, the Corporation has agreed, among other things, to provide Genome Canada with a cofunding plan for each project. A co-funding plan for each project has been provided to and accepted by Genome Canada.

The list of active research funding agreements with Genome Canada by program, and the supporting commitments from other parties for the active research projects covered by these agreements, as at March 31, 2023, is as follows:

Funding agreement description	Support commitment
Genomic Applications Partnership Program	\$ 17,705,660
2014 Large-Scale Applied Research Project Competition	9,301,561
2015 Large-Scale Applied Research Project Competition	20,228,679
2017 Large-Scale Applied Research Project Competition	31,200,660
2017 Bioformatics and Computational Biology	2,725,356
2017 Genomics Technology Platforms	21,107,989
2018 Large-Scale Applied Research Project Competition	3,445,880
2020 Large-Scale Applied Research Project Competition	8,979,761
Other	8,547,743
Total	\$ 123,243,289

(ii) Province of British Columbia:

In accordance with an agreement for funding received, dated March 30, 2015, and updated on March 24, 2017, March 29, 2018 and March 26, 2019, the Corporation received funding of \$85,000,000 to support its 2015 to 2020 strategic plan: Powering British Columbia's Bioeconomy. In accordance with the Agreement, the Corporation completed and submitted to the funder an accountability framework that included robust and detailed performance metrics on November 27, 2015. The Corporation launched its Industry Innovation Program in October 2015 as part of its commercialization strategy. Included as part of that strategy, and contingent upon the success thereof, is the intent to repay the Province \$10,800,000 over the next decade (note 4).

Pursuant to a funding agreement dated March 18, 2022, the Corporation was provided funding of \$78,000,000 to support its 2020 to 2023 and 2023 to 2026 strategic plans.

(b) Project commitments:

In the normal course of business, the Corporation enters into Collaborative Research Agreements for the completion of milestone-based research projects. Detailed below is the estimated remaining commitment of the Corporation's funds relating to active research programs. The Corporation typically provides co-funding to research projects, whereby its funds are combined with funds from other sources to provide the total project award amount. Funds provided directly to the research institution by third parties are included in the total award amount shown in the table below.

10. Commitments (continued):

(b) Project commitments (continued):

The total award amount and estimated remaining commitment of the Corporation by program as of March 31, 2023 is as follows:

			Estimated		
		Total		remaining	
Approved programs		award amount		Corporation commitment	
Current programs:					
2014 Large-Scale Applied Research Project Competition	\$	32,637,826	\$	598,456	
2015 Large-Scale Applied Research Project Competition		32,350,187		85,815	
2017 Large-Scale Applied Research Project Competition		60,335,939		2,643,716	
2018 Large-Scale Applied Research Project Competition		10,716,563		1,350,355	
2020 Large-Scale Applied Research Project Competition		13,183,764		1,200,917	
2017 Bioinformatics and Computational Biology		6,620,642		118,648	
Genomic Applications Partnership Program		40,678,361		2,258,652	
Canadian COVID-19 Genomics Network (CanCoGen)		3,903,967			
Genome Canada Pilot Projects		12,085,201		351,009	
2017 Genomics Technology Platforms		41,176,826		47,896	
Applied Genomics Consortium Program		31,193,623		99,455	
Human Epigenome (CIHR)		15,228,992		80,000	
Transplantation (CIHR)		4,000,000		50,000	
Quantitative Imaging Network (CIHR)		3,964,127		89,133	
Canadian Rare Diseases (CIHR)		4,009,250		-	
Environment and Genes (CIHR)		2,000,000		_	
User Partnership Program		12,775,337		138,375	
Sector Innovation Program		7,673,691		821,652	
Societal Issues		445,333		021,032	
ERA-MBT		780,119		11,492	
GeneSolve Program		6,378,479		470,065	
Genome British Columbia Pilot Programs		52,093,339		1,437,001	
COVID-19 Regional Genomic Initiatives		3,601,167		45,000	
Genomic Innovation for Regenerative Agriculture, Food & Fisheries		1,836,685		1,311,685	
Entrepreneurship Partnership Program		16,698,156		317,386	
Pilot Innovation Fund		1,495,123		671,500	
The time valent and	\$	417,862,697	\$	14,198,208	
Closed programs:		•			
Competition I, II, III	\$	186,363,352		_	
Competition in Applied Genomics Research in Bio-products or Crops		24,346,330		_	
International Competition		12,881,913		_	
Applied Genomics and Proteomics in Human Health		44,099,840		_	
Applied Genomics Innovation Program		24,437,610		_	
Translational Program for Applied Health		17,891,275		_	
NewTechnology Development Projects		5,509,566		_	
Technology Development: Initiatives Fund/2015		6,633,169		_	
Personalized Medicine Program		8,168,169		_	
2010–2012 Large-Scale Applied Research Project Competition		90,528,960		_	
2012–2015 Bioinformatics and Computational Biology		6,526,023		_	
2015 Disruptive Innovation in Genomics Competition		8,007,398		_	
Science and Technology Platforms		71,061,922		_	
2015–2017 Science and Technology Platform		7,999,946		_	
Entrepreneurship Education in Genomics Program		979,966		_	
Strategic Opportunities Fund		14,305,078		_	
Strategic Opportunities Fund for Industry		6,745,443		_	
Other Pilot Programs		3,561,133		_	
Pacific Economic Development Canada Programs		20,743,088		_	
Canadian Institutes of Health Research: Human Microbiome/ATID		10,529,437		_	
Brain Canada: Alzheimer's/MIRI 1&2/PSG				-	
		18,123,152		-	
Centre for Drug Research and Development Fund		4,823,919		-	
Science World British Columbia Outreach Program	\$	200,000 594,466,689		-	
Total	\$ \$	1,012,329,386	<u> \$ </u>	1// 100 200	
Total	Þ	1,012,323,380	Ф	14,198,208	

10. Commitments (continued):

(c) Operating lease:

The Corporation has entered into operating lease agreements for office premises which expire at various dates until September 30, 2027. Minimum payments for the next five fiscal years are as follows:

2024	\$ 67	77,932
2025	68	89,433
2026	70	00,935
2027	70	00,935
2028 Total	3!	50,467
Total	\$ 3,1	19,702

11. Genome British Columbia Foundation:

Genome British Columbia Foundation (the "Foundation") is a registered charity established to promote and foster life sciences research for the public benefit by coordinating, sponsoring and carrying educational conferences, seminars, workshops and symposiums. The Foundation is exempt from income and capital taxes.

The majority of the Foundation's Board of Directors are also members of the Corporation, and as such, the Corporation controls the Foundation. In accordance with the CPA Canada Handbook Section 4450, the Corporation has chosen not to consolidate the Foundation but has followed the disclosure requirements. The Corporation has no economic interest in the Foundation.

Financial information of the Foundation as at March 31, 2023 and March 31, 2022 and for the years ended March 31, 2023 and March 31, 2022 are as follows:

	2023	2022
Cash	\$ 6,400	\$ 6,400
Deferred contributions	(6,400)	(6,400)
Net assets	\$ _	\$ _
Revenues	\$ _	\$ 14,290
Expenses	-	(14,290)
	\$ _	\$ _
Cash used in:		
Operations	\$ -	\$ (14,288)
Net change in cash	\$ _	\$ (14,288)

There are no significant differences in accounting policies between the Foundation and the Corporation.

12. Financial risks:

(a) Liquidity risk:

Liquidity risk is the risk that the Corporation will be unable to fulfill its obligations on a timely basis or at a reasonable cost. The Corporation manages its liquidity risk by monitoring its operating requirements. The Corporation prepares budget and cash forecasts to ensure it has sufficient funds to fulfill its obligations.

Credit risk refers to the risk that a counterparty may default on its contractual obligations resulting in a financial loss. The Corporation deals with creditworthy counterparties to mitigate the risk of financial loss from defaults. The Corporation is also exposed to credit risk with respect to its cash and investments held. The risk of loss is considered low as all cash is held by one Canadian chartered bank and fixed income investments are highly liquid and are invested in highly rated corporate bonds.

(c) Market risk:

Market risk is the risk that changes in market prices, as a result of changes in foreign exchange rates, interest rates and equity prices, will affect the Corporation's income or the value of its holdings of financial instruments. The objective of market risk management is to manage and control market risk exposures within acceptable parameters, while maximizing the return.

(i) Currency risk:

Investments in foreign securities are exposed to currency risk due to fluctuations in foreign exchange rates. The Corporation is exposed to currency risk on its foreign currencies held within its cash accounts and through its investments in the International Equity Fund.

(ii) Interest rate risk:

Interest rate risk is the risk that the fair value of the Corporation's investments will fluctuate due to changes in market interest rates.

(iii)Other price risk:

Other price risk relates to the possibility that the fair value of future cash flows from financial instruments will change due to market fluctuations (other than due to currency or interest rate movements). The diversification across various asset classes is designed to decrease the volatility of portfolio returns.

There have been no significant changes to the risk exposures during the year ended March 31, 2023.

CORPORATE INFORMATION

Board of Directors (for fiscal year ended March 31, 2023)

Margaret (Peggy) Johnston

Chair

Independent Consultant Former Senior Program Officer Bill & Melinda Gates Foundation

Kausar N. Samli

Vice-Chair

Executive, Expert, Consultant

John Shepherd

Past Chair

Past Director, Leukemia/Bone Marrow Transplant Program of BC University of British Columbia

Judi Beck

Executive, (Retired) Natural Resources Canada

Lenard F. Boggio

Retired Partner

PricewaterhouseCoopers LLP

Christine Dean

Strategy Advisor & Consultant Formerly VP Global Timberlands Technology Weyerhaeuser Company

Ron Gill

Partner

PricewaterhouseCoopers LLP

Suzanne Gill

President and Chief Executive Officer Genome British Columbia

Janet Grove

Partner, Head of Canadian Life Sciences and Healthcare Group Norton Rose Fulbright Canada LLP

Nadja Kunz

Canada Research Chair in Mine Water Management and Stewardship The University of British Columbia

Charlotte Loppie

Professor - School of Public Health and Social Policy

Associate Dean, Research - Faculty of **Human and Social Development** University of Victoria

Nancy Olewiler

Director

School of Public Policy Simon Fraser University

Gavin Stuart

Professor

Faculty of Medicine University of British Columbia

Kory Wilson

Executive Director, Indigenous Initiatives and Partnerships British Columbia Institute of Technology

Board Observers

Rob Annan

President and Chief Executive Officer Genome Canada

Christian Hansen

Regional Director General (Pacific Region) Innovation, Science & Economic Development Canada (ISED)

Ian Rongve

Assistant Deputy Minister Strategy and Innovation Division Ministry of Health, Province of **British Columbia**

Management

Suzanne Gill

President and Chief Executive Officer

Tony Brooks

Chief Financial Officer and VP Entrepreneurship & Commercialization

Federica Di Palma

Chief Scientific Officer and Vice President, Research and Innovation

Sally Greenwood

Vice President, Communications and Societal Engagement

Quinn Newcomb

Vice President, Corporate Development

Auditors

KPMG LLP

Vancouver, BC

Legal Counsel

Richards Buell Sutton LLP

Vancouver, BC

Thanks to our Funders

Genome BC thanks its funding partners including the Province of British Columbia, the Government of Canada through Genome Canada, Pacific Economic Development Canada (PacifiCan), and project co-funders.







Acknowledgements

We also thank all those who assisted in developing this annual report, including the management and staff at Genome BC, Genome BC funded researchers, and the Carter Hales Design Lab team.











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