

GeneSolve Program Guidelines

A. Introduction and Background

Genome British Columbia (Genome BC) leads genomics innovation on Canada's West Coast and facilitates the integration of genomics into society. Genomics¹ is the science that aims to decipher and understand the entire genetic information of an organism. Genome BC aims to encourage genomics research which can provide social, environmental, and/or economic benefits to the communities of British Columbia, Canada and the world. A recognized catalyst for government and industry, Genome BC invests in research to address challenges in key sectors: **health, forestry, agriculture & agrifood, fisheries & aquaculture, mining, energy and the environment**. Examples of research projects supported by Genome BC can be found at: <http://www.genomebc.ca/research-programs/projects/>.

A key pillar of Genome BC's [2015-2020 Strategic Plan](#) is a focus on the application and translation of genomics research into practical applications that provide innovative and cost effective solutions to challenges, which may lead to enhanced competitiveness and sustainability across the key sectors. With this vision in mind, Genome BC created GeneSolve, an innovative new program that supports development of research partnerships to deliver genomics-derived solutions to sector challenges.

B. Program Objectives

GeneSolve seeks to foster applied and translational research by connecting the producers of genomics driven technologies with its end-users or consumers in BC's Health, Agrifood and Natural Resources sectors. Applied and translational research to address cross-cutting challenges (e.g. climate change, bioenergy, waste utilization, clean energy) is also encouraged. The program includes an optional web-based open innovation platform where Sector Partners can post challenges to source genomic-based solutions from a range of researchers.

GeneSolve aims to:

- promote application of genomics-derived solutions;
- encourage Sector Partner investment in genomics-related research for solving sector challenges;
- increase the socio-economic impact of genomics research in BC and beyond; and
- create and foster productive partnerships between Academic and Sector Partners (see Section C).

Strategically positioned within Genome BC's programmatic offerings to fund genomics research of an applied or translational nature, it is anticipated that partnerships supported through GeneSolve will lead to opportunities for follow-on projects and translational or commercialization opportunities funded by Genome Canada, Genome BC or other organizations and agencies.

¹The term genomics is specifically defined here as the comprehensive study, using high throughput technologies, of the genetic information of a cell or organism. This includes the function of specific genes, their interactions with each other or the surrounding environment as well as regulation (activation and suppression). For ease of reference, it includes related disciplines such as bioinformatics, epigenomics, metabolomics, metagenomics, proteomics and transcriptomics.

C. Eligibility and Role of GeneSolve Partners

There are two types of partners in GeneSolve projects: **Sector Partners** and **Academic Partners**.

Sector Partners

A **Sector Partner** is defined as an organization that intends and has the capability to put the resulting project deliverables into use (in internal operations, by commercialization, or otherwise making them available to ultimate users).

Sector Partners include: companies, industry consortia, government departments or agencies, or not-for-profits with a credible plan for exploiting project results for the socio-economic benefit of BC, Canada or the world. The Sector Partner can apply from any jurisdiction around the world and does not have to have headquarters or operations in BC as long as benefits to BC are significant and clear.

To participate in the GeneSolve program, the Sector Partner must:

1. articulate a sector challenge², the solution to which must have a socio economic benefit and which either: (a) requires genomics or (b) advances application of genomics;
2. provide a letter of commitment for co-funding and supporting financial documents³ confirming 50% of the funding for the project;
3. accept Genome BC's data sharing and release policy; and
4. accept Genome BC's Intellectual Property policy (see Section D).

Using the template provided by Genome BC, the Sector Partner will frame and develop a 'challenge', describing the particular sector challenge, the desired outcome, success criteria, funds available etc. Genome BC may be contacted to provide assistance in drafting the challenge. Genome BC will review the draft challenge to ensure that it meets the eligibility criteria (see section E) before posting on the on-line portal.

Academic Partners

An **Academic Partner** is a person with a faculty appointment/permanent position at an accredited BC institution or affiliated, non-commercial entity (see below). An Academic Partner cannot be a Sector Partner on the same project or the owner of or employed by a Sector Partner.

To be eligible for the GeneSolve program, the Academic Partner:

- must be appointed as faculty or hold a permanent position at one of the following types of BC institutions:
 - 1) post-secondary institutions or their affiliated hospitals or research institutes;
 - 2) laboratories of federal government departments or agencies; or
 - 3) non-governmental, not-for-profit organizations (including community or charitable organizations) with an explicit research or knowledge translation mandate.
- may include Post-Doctoral Fellows or Research Associates as a project co-leader; and
- must declare any actual or perceived conflict of interest with the Sector Partner.

Academic Partners will use their expertise and knowledge to propose solutions to Sector Partner challenges via the on-line portal.

² Please see the section E of this guideline.

³ Please see the section A of Appendix 2 of this guideline.

Registration

Academic Partners are required to register and accept Genome BC's **Terms of Use** at www.genesolve.ca/register in order to view the expanded details of a challenge on the on-line portal.

D. Program Parameters

GeneSolve Challenge categories:

Sector Partners can submit their challenge to one of the following two categories:

Open: this category is for Sector Partners who wish to source solutions to their challenges from the broader academic community.

Closed: this category is for Sector Partners who have already identified an Academic Partner.

GeneSolve projects budget and term:

- project budgets can range between \$75,000 and \$500,000⁴;
- Genome BC will award maximum up to \$250,000 per project, with a 1:1 match from the Sector Partner;
- project terms can range from six months to 24 months.

Intellectual Property

Genome BC does not take an ownership stake in project intellectual property (IP); however, Genome BC expects a return on its investment in projects at affiliated BC research institutions, as defined by agreements between Genome BC and institutional partners.

Timelines

Genome BC will accept challenges from Sector Partners on a rolling intake. Within one month of receiving the challenge and the required and complete supporting financial documents, Genome BC will notify the Sector Partner whether the challenge will be approved for posting on the GeneSolve portal or not. Academic Partners can submit proposed solutions for challenges posted on the on-line portal anytime up to the submission deadline.

Once a solution is selected, the final project term will be determined by the Academic Partner in consultation with the Sector Partner. All timelines will be subject to approval by Genome BC.

E. GeneSolve Application and Review Process

The GeneSolve Application process is shown below. The process is initiated by the submission of a Sector Partner's challenge to Genome BC for posting on the on-line portal and ends with the approval of an applied or translational research project that will address this challenge.

⁴ Genome BC reserves the right to approve GeneSolve projects with budget outside the indicated range.



The process for Sector Partners and Academic Partners is described here:

Sector Partners

1. Challenge Development and Qualification

Sector Managers at Genome BC will work with potential Sector Partners to understand the challenge and help determine if a genomics-based solution is plausible or if the solution will advance application of genomics in the sector and generate substantial socio-economic benefits. Once these are established, the Sector Partner will submit an official challenge using the template provided by Genome BC.

2. Challenge Approval and Web Posting

All challenges submitted to GeneSolve will be subjected to a review:

- i. of the Sector Partner's financial documents to confirm co-funding eligibility and feasibility (Appendix 2A); and
- ii. by a selection committee to ensure the challenge meets the following qualifying criteria:
 - a) the sector specific challenge is clearly articulated;
 - b) the solution to the challenge will either (a) require genomics or (b) advance application of genomics for socio-economic benefits;
 - c) there is a plan for how the potential solution may be taken forward towards implementation/uptake if the project is successful, and
 - d) the partnership and the project outcomes will provide clear and direct benefit to BC, Canada and beyond.

Genome BC retains the right to make the final decision regarding the eligibility of a challenge for participation in GeneSolve and posting of a challenge on the on-line portal.

Eligible challenges will be posted on the on-line portal once they are approved by Genome BC. For closed challenges, the web posting will be accessible to only the pre-selected Academic Partner.

Each challenge displayed on the on-line portal will include the following information:

- Sector Partner (option to remain anonymous)
 - organization's name and sector
- The challenge
 - title
 - category (open/closed)
 - funds available (cash and in-kind⁵ contribution from Sector Partner)
 - solution submission deadline

⁵ Please refer to Appendix 2

- Summary (50 words max)
- Overview (250 words max)
 - current situation
 - major hurdles to overcome
- Expectations
 - specifications for performance of the solution; and
 - identification of “must have”, “nice to have” and “no need to have”
- Desired outcome and deliverables
- Plan for implementation of the solution
- Benefits to BC
- Background information about the sector partner

Sector Partners can submit their challenge in the Open or the Closed category.

Open: once posted, registered Academic Partners will receive an email notification and have the option to view the challenge and propose a solution via the on-line portal.

Closed: once posted, the pre-selected Academic Partner(s) will be notified and invited to propose a solution via the on-line portal.

Genome BC is not responsible for any proprietary or confidential information that may be posted on the website. Sector Partners have the option to establish a challenge-specific agreement for Academic Partners to cover any terms related to viewing proprietary/confidential information. Sector Partners also have the option to remain anonymous to the Academic Partners when a challenge is posted on the on-line portal; however, the identity must be revealed to the Academic Partners shortlisted for the pitch stage of the process (see below).

Academic partners

3. Solution Submission

For Open challenges, Academic Partners can view challenges and submit a proposal of their solution by completing a solution submission form available on the GeneSolve portal. Each challenge will have a deadline for submission of proposed solution.

For Closed challenges, the Academic partner will be notified via email to view the challenge and submit a proposed solution within a specified deadline.

The proposed solution must use a genomics approach or facilitate the application of genomics while meeting the GeneSolve program parameters⁶.

To propose a solution, the Academic Partner is required to complete the following sections of the solution submission form:

- Academic Partner (Project Leader)
 - name, address, affiliation, and area of expertise
- The challenge
 - title and code of the Challenge for which the solution is proposed
- The solution
 - title for the solution
 - project duration (months)
 - description of team
 - three most relevant publications/patents by the team

⁶ Please see the section D

- summary of the solution (250 words max)
- description of the solution (2500 words max)
- deliverables
- estimated budget (salaries, consumables, equipment, services from others, general and administrative)
- supporting documents (maximum two pages)

4. Review of Solution(s) and Invitation to Pitch

All solutions will be reviewed against evaluation criteria described in Appendix 1. Eligible solutions may be further reviewed by subject matter experts. Genome BC will decide, in partnership with the Sector Partner which solutions move forward to the pitch stage.

5. Pitch and Solution Selection

Shortlisted or pre-selected Academic Partners will be invited to provide a formal face-to-face pitch to present details of their proposed solutions.

A selection committee, the Sector Partner and consulting subject matter experts will evaluate each presented solution (or ‘pitch’) as per the evaluation criteria described in Appendix 1 to determine which solution will be best able to provide the deliverables and desired outcomes of the challenge.

The Academic Partner supplying the best solution will advance to the project development phase of the process.

6. Research Plan Development & Review

The Academic Partner will be invited to prepare a research plan in consultation with the Sector Partner and Genome BC. The research plan will be peer reviewed by subject-matter experts to ensure that it is robust, feasible and meets the criteria of GeneSolve. Following the review, Genome BC may request changes to the research plan.

7. Research Plan Approval

Once the research plan has been approved, Genome BC will issue a Notice of Results and will then initiate the process to launch the research project through agreements with the Sector Partner and the Academic Partner and release the funds.

F. Administration Following Notice of Results

The plan for disbursement of approved funds will be determined based on the specific needs of the project. The first disbursement of funds will flow to projects once all conditions for the release of funds have been met as detailed in the Notice of Results.

Funded projects will be required to provide Genome BC with financial reports annually and at the end of the project. A research report will be required at the end of the project. *Genome BC reserves the right to hold back a portion of funding until the completion of the final report.*

Genome British Columbia Contacts: Interested partners are encouraged to contact Genome BC for information about the program or developing a challenge.
For general program information:

Alison Dendoff
genesolve@genomebc.ca

To develop a Sector challenge:

Dr. Rachael Ritchie
Sector Director, Agrifood and Natural Resources
rritchie@genomebc.ca

Dr. Madoo Varma
Sector Director, Health
mvarma@genomebc.ca

Further information is available on the Genome BC website (www.genomebc.ca).

Appendix 1. Evaluation Criteria and Guidelines

To maximize the output of the research and to meet the objectives of GeneSolve, the following evaluation criteria will be used to evaluate proposed solutions, pitches and research plans.

The following two categories of criteria are regarded as equally important:

A. Potential for impact on the sector

1. That the project deliverables will solve the challenge.
2. That the deliverables are realistic and achievable.
3. The potential economic, social and/or environmental benefits of this research are well-described and reasonable.
4. That the potential users of the outcomes of this project have been identified.
5. That successful solution will advance research through follow-on projects, partnerships with key sector users, collaborations etc.

B. Research, Management and Financial Feasibility

Research

1. That the genomics or genomic-related approaches used will solve the challenge.
2. That the major activities are consistent between the research plan, budget and Gantt chart.
3. That the proposed activities have specific, measurable research objectives that will support the project deliverables.
4. That the proposed objectives, goals, milestones and critical path are feasible. Milestones must be constructed so as to provide objective performance metrics and should be realistically attainable during the proposed timeframe.
5. That the available resources, facilities and equipment are suitable.
6. That the design, methods and analysis are adequately developed, well integrated, and appropriate to the aims of the project.
7. That the project include links to collaborators that are essential to the success of the project.
8. That the plans for handling the research data and biological resources (data protection, release and publication, resource sharing, etc.) are appropriate.
9. That the team has access to existing samples or a plan to complete sample collection very early in the project.

Management

10. That the expertise and time commitment of the research team in terms of realizing the research goals are appropriate.
11. That the project leader(s) have the demonstrated leadership and research expertise/experience.
12. That the management plan cover project governance, accountabilities of personnel, and processes for decision-making on research direction.
13. That the team (Sector Partner and Academic Partner) clearly demonstrate how they will make the research results accessible to the research community, when intellectual

property protection is not a concern. For example, the team has defined data repositories to share data.

Financial

13. The budgeted costs comply with the eligible costs outlined in the Financial Guidelines. (Appendix 2)
14. The budgeted costs aligned with the proposed research plan and activities.
15. There is a clear relationship between the costs and proposed benefits of the project.
16. The financial and budgetary control processes are effective.
17. The documentation and principal financial assumptions support the proposed budget.
18. The costs allocated to Genome BC are incurred and paid for in the Province of BC. Costs incurred in BC utilizing fee-for-service providers located outside of the Province are eligible, although quotes must be provided and out of province services justified.

Appendix 2. Financial Guidelines

A. Sector Partner funding

1. At least 50% of the approved funding for eligible project costs must be provided by the Sector Partner.
2. Of the first \$100,000 of a project budget, the Sector Partner's contribution must be cash (i.e., \$50,000 from Genome BC and \$50,000 in cash from the Sector Partner). Thereafter, 50% of the Sector Partner's contribution must be cash.
3. Co-funding must be quantifiable and auditable.

Eligible Sector Partner Funding

1. For funds to be considered as cash, they must either be provided directly to the Academic Partner's institution, to Genome BC or to an external, arm's length, third party for services that are only incurred for the proposed project. Such third party costs must be: new, fall within the project term, cannot be part of a previous contract, and the results of such third party services must be provided to the Academic Partner for use in the project. A strong justification must be provided to support why such costs cannot be incurred and paid for by the academic institution.
2. Eligible Sector Partner in-kind co-funding expenses will only be recognized up to six (6) months prior to Genome BC's Notice of Results.
3. All co-funding must be supported by appropriate documentation. This would include:
 - a. Written confirmation (e.g. a letter or a legal agreement) from the co-funding source that commits the funds and provides detail of the amount and date of funding, acknowledgement of the use of these funds to co-fund the Genome BC project and acknowledgement of compliance with Genome BC's reporting requirements.
 - b. Co-funding from an industry source, including the Sector Partner:
 - For privately held companies, a copy of a Board resolution specifying the company's amount and terms of commitment.
 - For larger companies, a letter from a senior signing authority who is independent to the project, specifying the company's amount and terms of commitment.
 - Documentation provided to support the financial viability of the organization and its ability to fulfill its commitment to the project, including recent financial statements accompanied by other information, such as cash flow projections, audited financial statements, press releases announcing significant new funding, etc.
4. In-kind contributions can be as follows:
 - a. Salaries and benefits of individuals that will work in the project. These must be at cost with no mark up. Salaries for project team members, apart from Project Leader or Co-leaders, who do not hold existing, ongoing or permanent salaried positions through their organization. Salaries must be for a new hire or could be the reassignment of an existing contract (i.e. not a permanent position) to work on the proposed GeneSolve project, even part-time (minimum of point fifteen of a FTE). If the person is being reassigned to the GeneSolve project, the organization would need to confirm in writing that they are re-allocating the contract person to the GeneSolve project.
 - b. Consumables which must be accompanied by a clear rationale and calculation of how the value was determined and supported by documentation (e.g. assumptions, price lists, quotes from suppliers, letters supporting same, etc.) and cannot exceed 15% of the total in-kind co-funding

- c. All in-kind expenditures must represent items that would otherwise have to be acquired with cash; however, this excludes the cost of pre-existing facilities or equipment (i.e. budgets cannot include the opportunity cost of space or equipment)
 - d. Note that supplier discounts, including arrangements in which a supplier/purchaser relationship exists, are not acceptable sources of co-funding
 - e. G&A and equipment costs are not acceptable as in-kind co-funding expenditures
 - f. Genome BC may determine that only a portion of proposed in-kind contribution is eligible
5. The value of previously existing IP transferred to a project is not eligible co-funding unless it is a contribution by a supplier of IP (e.g. software license that would otherwise have to be acquired from a third party supplier). Such items must be supported by appropriate documentation from the supplier's head office.

B. Eligible costs

Eligible costs are defined as reasonable and new costs for items that directly support the objectives of the Genome BC approved project. Overhead costs are not eligible costs and as such cannot be included in the proposed budget.

Note that Genome BC funds cannot flow to a company or to a BC Provincial government laboratory unless they are providing the work on a Fee-for-Service basis (see Services from Others).

The main categories of eligible costs are: 1) salaries and benefits, 2) consumables, 3) services from others, 4) general and administrative costs and 5) equipment.

Eligible costs may include the following:

1. Salaries and benefits:

- a) Salaries for project team members, excluding Project Leader or Co-leaders, who do not hold existing, ongoing or permanent salaried positions through their institution. Salaries must be shown to be new and incremental, and represent at least 0.15 FTE per annum.
- b) Benefit rate as charged by the host institution, not to exceed 20% of the employee's salary.
- c) Salaries to support administration and coordination of the project, such as a Project Manager, to a maximum of \$5,000 per year (pro-rated for part years) in total costs for projects.

2. Consumables:

- a) Materials and supplies consumed as part of the research, such as laboratory reagents and supplies (e.g. microtitre plates, pipette tips, kits, reagents). For consumables utilized in most laboratories, a general rate per Full Time Equivalent (FTE) may be accepted, provided that the rate is appropriately justified in the supporting documentation.
- b) Items that meet at least one of the following; 1) expendable tangible property, 2) useful life of 1 year or less, or 3) a cost of less than \$2,000. For example, a \$1,900 piece of equipment, such as a laptop, would be considered a consumable cost.

- c) Travel for research activities (e.g. sample collection).
- d) Equipment service contracts, provided that the need for the use of the equipment is justified.

3. Services from Others:

- a) External costs that are incurred based on a reasonable fee-for-service arrangement or contract.
- b) Costs related to Intellectual Property protection services, such as patent registration, filing, and maintenance costs incurred during the term of the project, as long as the service is provided by a company external to the host institution.
- c) A copy of a quote or Statement of Work (SOW) must be provided to support any individual cost that exceeds \$15,000.

4. General and Administrative (G&A)

- a) Reasonable and low general and administrative costs directly linked to the project. For example, travel costs that are not directly related to the research activities (e.g. travel to conferences and meetings), costs for the project's communications and public outreach activities, and costs associated with scholarly publications, including fees to provide open access to the findings (e.g. costs of publishing in an open access journal or making a journal article open access).
- b) G&A costs must not exceed five percent (5%) of the non-administrative costs of the project budget (calculated as total budget less administrative costs).

5. Equipment:

- a) Equipment is defined as any item (or collection of interrelated items comprising a system) which is used wholly or in part for the research proposed and meets all three of the following conditions: 1) non-expendable tangible property, 2) having a useful life of more than one (1) year, and 3) a cost of \$2,000 or more.
- b) A strong justification for the need to purchase equipment for a Genome BC project must be provided.
- c) Any items of equipment over \$15,000 require a copy of a quote to be provided with the application.

Ineligible costs include, but may not be limited to:

- Indirect costs to the project, such as institutional overhead costs applied to funds from partners.
- The opportunity cost of using existing infrastructure.
- Costs related to the preparation and submission of an application for funding from Genome BC or any other funding agency.

Genome BC will conduct a financial due diligence review of each application and its associated budget as part of the review process to assess if costs are eligible and well-justified.