



GenomeCanada

**Guidelines
and
Evaluation Criteria
for
Genome Centres**

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Genome Canada, a not-for-profit corporation, in the February 2000 federal budget received a grant of \$160,000,000 from the federal government, through Industry Canada, to support a national genomics research initiative, for the benefit of Canadians.

1 Objective

The overriding objective of Genome Canada is to coordinate genomics research to enable Canada **to become a world leader** in selected sectors that are of strategic importance to this country, such as health, agriculture, environment, forestry and fisheries.

In order to accomplish this objective, Genome Canada will:

1. Bring together industry, governments, universities, hospitals, research institutes and the public in support of the national genomics research program.
2. Support large-scale genomics projects that draw on existing Canadian strengths and expertise, and whose scale and scope are such that they cannot currently be funded at internationally competitive levels, through existing mechanisms.
3. Put in place research infrastructure to support the major science and technology platforms essential for the large-scale projects including, but not limited to, functional genomics and proteomics, genomics sequencing, genotyping, bioinformatics and new technology development (Figure 1).
4. Ensure leadership in ethical, environmental, legal and social issues related to genomics.
5. Effectively communicate the results of genomics research to the public, thereby helping Canadians to understand the relative risks and rewards of this type of research.
6. Provide leading-edge technologies to researchers and cross-disciplinary training of the necessary workforce in all genomics-related fields through support for five Genome Centres across Canada: one each in British Columbia, the Prairies, Ontario, Québec and the Atlantic provinces.
7. Foster Canadian participation in international genomics research programs.
8. Encourage investment in genomics research by others.

2 Creation of Genome Centres

Genome Canada is initiating a program to fund five Genome Centres across Canada: one each in British Columbia, the Prairies, Ontario, Québec and the Atlantic provinces. Genome Centres are currently being established across Canada as partnerships among universities, research hospitals, industry, governments and the public. *Genome Canada will accept only one application for funding from each of the five Genome Centres.* Therefore, Genome Canada expects that each application will represent a broad range of interested participants within Canada and internationally who have worked together in an open and inclusive process to create a single Genome Centre. Contact persons for each Centre are presented in Appendix A.

In a rapidly evolving field, a precisely worded definition of genomics could well be counterproductive. However, there is a clear division between studies that are “genome-wide” in scale and scope and those research projects currently funded by grants to individuals and groups of investigators in areas such as biochemistry, genetics or molecular biology. Genome Canada is seeking proposals that are “genome-wide”.

Each Genome Centre will propose its own combination of **large-scale projects** and the required **science and technology platforms**, so that complementarity in aggregate of all Centres combined provides a synergy to ensure that Genome Canada’s mandate is fulfilled while achieving Genome Centres’ objectives and priorities. In addition, it is the responsibility of each Centre to establish a research **program in the ethical, environmental, legal and social issues related to genomics** (GELS) and to develop an effective **communications and public outreach program**. Each Centre must put in place an appropriate management plan, including specific administrative and organizational structures that will be used to support the research.

1. **Large-scale genomics projects:** Each Genome Centre, at the time of the original application for establishment funding, will propose responsibility for one or more large-scale projects. These are coordinated projects of such scale and scope that they cannot currently be funded at internationally competitive levels through existing mechanisms. The large-scale projects will be the foundation for each Centre.
2. **Science and technology platforms:** Each Genome Centre must ensure that the large-scale projects of the Centre are supported by the appropriate science and technology platforms. The platforms will bring capabilities to the Centre scientists that will greatly enhance the efficiency of their work and make possible strategic projects of great scientific merit that cannot be currently funded through existing mechanisms.

Through its science and technology platforms, each Genome Centre will also have the potential to provide the necessary resources and expertise to

investigators whose genomics research projects are supported by funds from outside Genome Canada.

It is understood that the science and technology platforms of each Centre will evolve and expand following the demonstrated needs of the research community. Accordingly, it is the responsibility of each Genome Centre to determine the proportion of time each platform is committed to the large-scale projects versus projects supported by other sources. The proportion of time committed to each may vary from Centre to Centre and over time.

3. **GELS component:** A critical element in each Genome Centre is a program for research into the ethical, environmental, legal and social issues surrounding genomics research, development and application. Canada has internationally renowned scholars in these areas whose work can be supported through the Genome Centres and Genome Canada.
4. **Communications and public outreach program:** It is essential that the issues surrounding genomics research be actively communicated to the public. This will require Genome Canada to plan for and conduct a vigorous communications and public outreach program through the media, educational systems and other mechanisms, in coordination with the Genome Centres.

In order to maximize the effectiveness of Genome Canada to advance genomics research in Canada, it may be desirable to provide opportunities for sharing of resources and expertise between Centres. It is possible that large-scale projects from one Centre may require the science and technology platforms available in another Centre. It is also possible that researchers from across Canada and from other countries may collaborate on large-scale projects, sharing technology, knowledge and resources.

Each Genome Centre should make a distinctive and outstanding contribution to Canada's status as a world leader in genomics research.

3 Application and Evaluation Procedures

It is the responsibility of each Centre to inform its community of the opportunities available through Genome Canada and to evaluate the regional capacity for genomics research. Each Genome Centre will use its own methods for inviting, evaluating and selecting proposals to be included in their application to Genome Canada for funding of the Centre. The process used will be subject to three overriding principles: 1) open competition, 2) transparency and 3) peer review.

Genome Canada will assist the Genome Centres as they develop applications for funding, serving as an advisory body and link between the Genome Centres.

As stated in Section 3.2, Genome Canada has the sole responsibility for evaluating the applications for funding received from the Genome Centres.

3.1 Letter of Intent

By November 17, 2000, each Centre must submit to Genome Canada a Letter of Intent (LOI) for a funding application. The letter (including cover page) must not exceed five (5) pages and will include:

- a cover page, including:
 - the title and logo of the Genome Centre
 - the address, telephone and FAX numbers, and e-mail address
 - names and signatures of the Chairman of the Board and the President of the Genome Centre
 - date of submission of the LOI
- overview of the process used to inform the community (including industry, government, universities, research hospitals and the public) to ensure inclusiveness
- overview of the process established to evaluate and select the activities of the Centre, including the scientific, financial/operational and management criteria used
- a preliminary description of the potential large-scale projects, by sector, supported by the appropriate science and technology platforms
- a list of potential partners (national and international)
- a strategy outlining how the proposal will address the national objectives of Genome Canada as defined in these guidelines
- names, contact information and expertise of potential reviewers.

The Letter of Intent will be used by Genome Canada to provide guidance in the establishment of the peer review process and to facilitate integration of large-scale projects among Centres to stimulate cooperation and avoid unwanted duplication of effort.

3.2 Genome Centre Application for Funding

Applications for the funding of Genome Centres will be submitted to Genome Canada by January 26, 2001. Details of the application format and evaluation criteria are outlined in Appendices B and C.

Genome Canada will establish a multidisciplinary committee of international peers to review the Genome Centre applications for funding. Committee members will meet with representatives of each Centre. Committee members will provide a detailed evaluation

of the strengths and weaknesses of each application taking into consideration each of the evaluation criteria (scientific, financial/operational and management). Committee members will also review the Genome Centre applications collectively, identifying gaps and potential areas for collaboration between Centres. It is also the responsibility of the Committee to comment on the budget requested and make a formal recommendation. Genome Canada may adjust the evaluation process where warranted by the complexity of the proposals or other relevant factors.

The Genome Canada Board of Directors will make the final decision on funding for each proposal by March 30, 2001.

4 Funding

The operating budget of a Genome Centre must provide all the necessary resources, equipment, expertise, operating costs and infrastructure required to conduct the approved research projects. However, it is to be expected that only part of that budget can be funded by Genome Canada.

Recall that the entire endowment of Genome Canada is \$160,000,000, and that it must last for five years.

In practice that means that every effort must be made by the Genome Centre to secure contributions from other funding organizations both within Canada and outside (e.g., provincial governments, not-for-profit organizations, Canada Foundation for Innovation, and industry), either in cash or in-kind, to fund part of the cost of the research that it will propose in the application to Genome Canada.

4.1 Eligible costs:

- **operating costs**
- costs related to the general **maintenance** of research infrastructure, to be used primarily for carrying out research proposed in the large-scale projects
- the cost of **salaries** of researchers, trainees, technicians, management and support staff needed for the operation of the research infrastructure
- support for research into ethical, environmental, legal and social issues related to genomics research (**GELS**)
- costs for the **communications** and public outreach program
- **research infrastructure** within Canada. As defined in the *Funding Agreement between Genome Canada and the Government of Canada*, research infrastructure means equipment, specimens, scientific collections, computer hardware or software, information databases, communications linkages and intangible property used or to be used primarily for carrying on the research, including housing and installations essential for the use and servicing of the

items listed above. Housing and installations include existing buildings and facilities, or new buildings and facilities, essential for the use of those items listed above, and

- reasonable and low **administrative costs**

4.2 Exclusions from eligible costs:

- grants, contributions or research procurement contracts except those related to research into ethical, environmental, legal and social issues related to genomics research
- activities carried out by persons outside of Canada, except if that person or persons usually reside(s) in Canada and the activities are related to research carried out in Canada, and
- any cost not directly related to the Genome Centre activities

5 Initiation of Operations as a Funded Genome Centre

5.1 Contract

Any funded Genome Centre will be established as a not-for-profit corporation under the *Canada Corporations Act Part II* with the legal right to enter into a binding contract with Genome Canada. The contract will specify expected support and cash flows, expected outcomes, performance indicators, comparative benchmarks and monitoring programs. Contracts will be negotiated in accordance with the national objectives of Genome Canada. As the needs and circumstances of each Centre will differ from one another, the contracts with each Centre will be negotiated individually and need not be identical.

5.2 Accountability and Reporting

5.2.1 Genome Centres

A separately constituted Board of Directors, which may include, but is not limited to, senior level representatives from universities, research institutes, federal and provincial laboratories, the public, industry, governments and, if deemed appropriate, international (Canadian and non-Canadian) leaders in genomics research, will oversee the operations of each Centre. The Board of Directors must ensure that the evaluation, audit, accountability and reporting requirements established by Genome Canada are met, to enable Genome Canada to assess the ongoing performance of the Centre.

5.2.2 Genome Canada

Genome Canada will regularly monitor all operations, directions and outcomes at both national and Genome Centre levels to ensure that commitments to the mandate are

achieved. Genome Canada will also make available its annual reports in a timely fashion and produce a renewed strategic plan every three years. An independent third-party evaluation of Genome Canada will be conducted no later than 2004. This evaluation will include all activities and projects of Genome Canada, the output and operations of all Genome Centres, the research undertaken into ethical, environmental, legal and social issues related to genomics, efforts in public communications and outreach, commercialization and corporate development and overall results achieved in relation to the mandate of Genome Canada. The evaluation, audit, accountability and reporting plans of each funded Centre are expected to support these larger accountability obligations, recognizing that (i) the performance of the Centre as a whole will be reviewed on a regular basis, (ii) individual projects can be reviewed and (if necessary) terminated; and (iii) non-performing Centres can be terminated. Genome Canada will foster relationships with other funding agencies, both within and outside Canada, including, but not limited to, provincial and federal funding agencies, Canada Foundation for Innovation and not-for-profit organizations.

6 Time line

Circulation of guidelines	September 15, 2000
Submission of LOI for Genome Centre application	November 17, 2000
Response to LOI	November 30, 2000
Receipt of Genome Centre application	January 26, 2001
Completion of peer review	March 2, 2001
Announcement of decisions	March 30, 2001

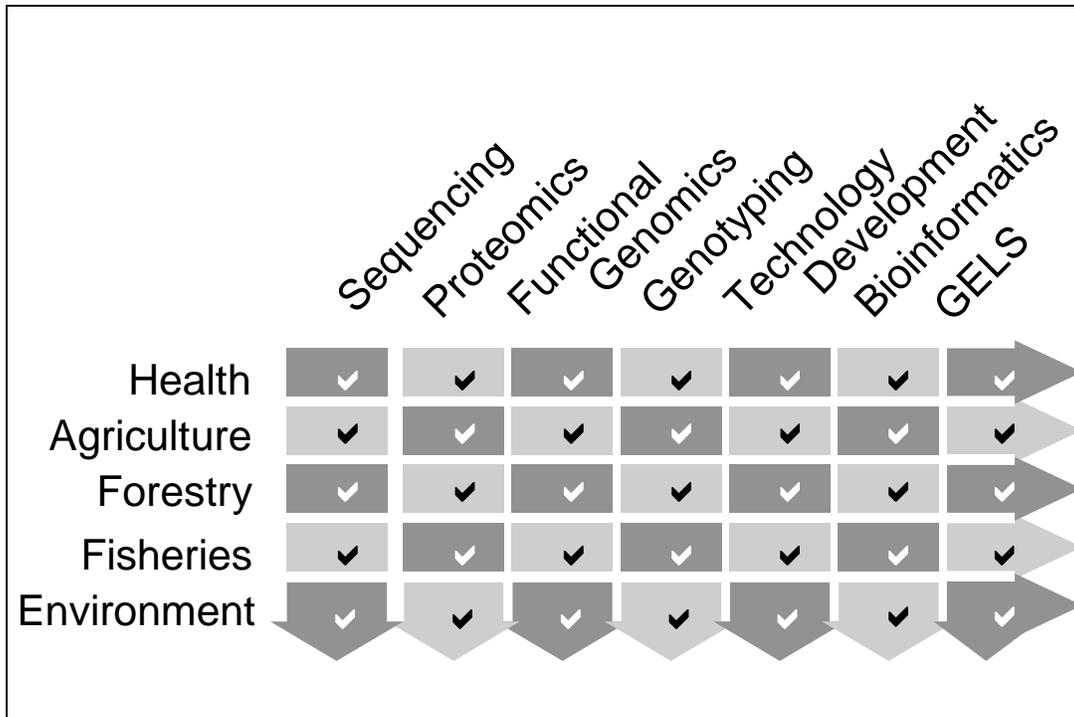
7 Further Information

Any queries should be directed to:

Cindy L. Bell, Ph.D.
Director of Programs
Genome Canada
155 Queen Street
Suite 900
Ottawa, ON K1P 6L1
Tel: (613) 751-4460
Fax: (613) 751-4474
E-mail: cbell@genomecanada.ca

For further information on Genome Canada, please see *The Funding Agreement between Genome Canada and the Government of Canada*. This document is available from Genome Canada.

Figure 1



British Columbia:

Roger Foxall
tel: (604) 541-1269
rafoxall@island.net

Prairies:

Dennis Fitzpatrick
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dennis.fitzpatrick@uleth.ca

Ontario:

Suk-Hing Yiu
tel: (416) 326-9658
yiusu@est.gov.on.ca

Québec:

Chantal Brunet
tel: (418) 657-0646
Cbrunet@innovatech-quebec.qc.ca

Atlantic Provinces:

Joe Gillis
tel: (902) 421-5646
wjgillis@hfx.eastlink.ca

Appendix B Genome Centre Application Format

A complete Genome Centre application for funding must be presented in the following format and address the evaluation criteria as described in Appendix C.

- I Cover page, including:
 - title and logo of the Genome Centre
 - address, telephone and FAX numbers, and e-mail address
 - names and signatures of the Chairman of the Board and the President of the Genome Centre
 - date of submission of the application
- II Table of Contents
- III Executive Summary (maximum two pages)
 - must include a description of how the Genome Centre will contribute to the national objectives of Genome Canada
- IV Genome Centre Proposal (maximum 40 pages, excluding references, figures and tables), including:
 - introduction
 - research plan, including, but not limited to:
 - large-scale projects
 - science and technology platforms
 - GELS program
 - program for new technology development
 - milestones and time line (GANTT chart)
 - plan for ongoing evaluation of large-scale projects
 - results to be achieved, performance expectations and indicators
 - implementation/management plan, including, but not limited to:
 - administrative and operational structures (organizational chart)
 - training plan
 - description of the needs in terms of human resources
 - communications and public outreach program
 - commercialization strategy
 - intellectual property management
 - technology transfer mechanisms
 - benefits to Canada, including economic, industrial and social
 - partnerships: a description of the nature and extent of involvement of partners from industry, governments, universities, research hospitals and the public
 - conclusion, including, but not limited to:

- international competitiveness of the proposal
- integration with the national objectives of Genome Canada

V Financial Details

- budget request for up to five years of funding, with full justification including:
 - a separate detailed budget for each large-scale project, science and technology platform, the GELS program, the communications and outreach program, and administration
 - a spreadsheet summarizing the budget request for the entire Centre, with each activity of the Centre in a separate column.
- identification of funding from Genome Canada and other sources (existing and planned), including infrastructure available to the Centre
- projected statement of cash flows

It is recognized that a developmental phase may be required to pull together all the scientific, experimental, computational and management skills necessary to proceed with the large-scale projects. The budget requested should reflect the staged developmental approach.

- #### VI Plan to fulfill the evaluation, audit, accountability and reporting requirements established by Genome Canada, including the provision of information necessary to enable Genome Canada to assess the ongoing performance of the Centre.

Appendix I

Curriculum vitae for the President, Scientific Director, researchers and other key personnel of each Centre (use the form to be provided on the Genome Canada website (www.genomecanada.ca)).

Appendix II

A detailed research proposal for each large-scale project (maximum 10 pages each, excluding references, figures and tables). Five (5) publications from the past five years, relevant to the proposal, may be appended to each large-scale project proposal, as well as questionnaires and consent forms, where applicable.

Appendix III

- the names, affiliations and signatures of the President, Scientific Director, researchers and other key personnel
- a list of partners/collaborators from industry, governments, universities, research hospitals and the public, including the names of principal individuals. Letters of collaboration and support should be attached.

Appendix IV

Information on other sources of financial support (cash and in-kind), currently held or applied for, which has budgetary overlap with the Genome Centre application for funding.

Appendix V

Certification forms. Genome Centres proposing to perform research requiring certification, such as research involving animals, human subjects, biohazards, radioactive materials or possible effects on the environment, must obtain the appropriate certification.

Appendix VI

Names, contact information and expertise of up to ten (10) potential reviewers.

The application can be single-spaced, but a type font no smaller than 12 pitch must be used. A maximum of four (4) pages of figures and tables may be included in the overall research plan and each large-scale project research proposal. Fifteen (15) copies of the full application package (original and fourteen (14) copies) are required. Additional copies may be made by Genome Canada if required.

Appendix C Genome Centre Evaluation Criteria

To ensure that the objectives of Genome Canada are met, proposals are assessed against the following three criteria. A threshold of excellence must be exceeded for each criterion. The descriptors following each criterion are not all-inclusive.

A Scientific Criteria

1. Scientific excellence of the proposed research as affirmed by peer review; genomics focus and comprehensive (“genome-wide”) nature of the research proposed in the large-scale projects; demonstration that large-scale projects are coordinated, integrated and inclusive; importance and/or originality of the questions posed and expected results; and demonstration of the way in which the proposed research fits into the international genomics research picture (i.e., is it “cutting edge” genomics research?).
2. The quality and experience of researchers affiliated with the Centre: the appropriateness of the training and/or track record of the applicant(s) for the proposed research, in particular, prior contributions to the field of genomics research; the importance and originality of the recent productivity of the applicant(s), especially with regards to genomics-related problems; and the level of confidence in the ability of the applicant(s) to do the work proposed.
3. Demonstration of the need for the science and technology platforms in supporting the large-scale genomics projects.
4. The quality of the program for research into the ethical, environmental, legal and social issues surrounding genomics; linkages with international committees/commissions and programs; awareness of international standards; and capacity to complement international expertise.
5. The potential of the Centre for research training: excellence of the training program and appropriateness of the training environment to ensure that a sufficient quantity of highly skilled researchers and technicians are available to fuel the demands in genomics for the next decade.
6. Demonstration that Genome Canada support and resources are critical if the large-scale projects are to be carried out successfully.
7. The benefits to Canada including, but not limited to, economic, industrial and social.
8. The extent to which the scientific component of the Genome Centre will increase

the productivity of genomics research, and enhance the development of new technology to improve Canada's capacity for innovation.

9. Demonstration that research to be carried out in the Centre builds on existing Canadian strengths and expertise in genomics research and/or targets a unique Canadian niche.
10. Demonstration of the Genome Centre's participation in international genomics research programs.
11. The relevance and impact of anticipated results on the area of research, internationally.
12. Quality of the plans for disseminating results and data.
13. Results to be achieved, performance expectations and indicators, to be in line with the national objectives of Genome Canada.

<i>B Financial/Operational Criteria</i>

1. Effectiveness of financial and budgetary control mechanisms.
2. Effectiveness of the plan for deployment of human resources, equipment and infrastructure.
3. The nature, structure and amount of financial commitments (cash and in-kind) received by the Genome Centre from other sources, national and international.
4. The financial sustainability of the Centre.
5. The full cost-recovery policy with respect to services provided to the private sector.
6. The relationship expected between the proposed costs and potential benefits of the Genome Centre.
7. The expected commercial potential.
8. Effectiveness of the proposed plan to achieve the research aims and overall goals of the Centre.
9. The quality of the documentation and principal financial hypothesis, that support the proposed budget.

C <i>Management Criteria</i>

1. Appropriateness and quality of the management plan, including the effectiveness of the administrative and organizational management structure.
2. Appropriate Board of Directors and committees to ensure effective leadership, organization, governance and management.
3. Quality of the plans for making critical decisions or choices about the overall research direction.
4. Evidence that an effort has been made to include all suitably qualified groups and individuals (i.e., that the process used to inform the community of opportunities available through Genome Canada was open and inclusive).
5. Strategies and implementation plan for coordination, liaison and networking with other Centres, and relevant organizations and individuals.
6. Potential of the Centre for management training: excellence of the training program and appropriateness of the training environment to ensure that a sufficient quantity of highly skilled managers is available to fuel the demands of the next decade.
7. Strategies for provision of access to science and technology platforms to other researchers whose research is funded outside of Genome Canada.
8. Plans to form alliances and partnerships with industry, governments, universities, hospitals, research institutes and the public in support of the national genomics research program.
9. A communications strategy with proposed mechanisms for public outreach to ensure adequate discussion of genomics research and its impact on Canada and Canadians.
10. The plan to fulfill the evaluation, audit, accountability and reporting requirements, including the provision of information necessary to enable Genome Canada to assess the ongoing performance of the Centre.
11. Strategy for commercialization, technology transfer and handling of intellectual property issues.
12. Policy and selection process with respect to services provided to the private sector.