



GenomeCanada



GenomePrairie

## **Request for Applications** **2017 Large-Scale Applied Research Project Competition:** ***Genomics and Precision Health***

### **1. Overview**

Genome Canada, in partnership with the Canadian Institutes of Health Research (CIHR), is seeking proposals for large-scale research projects which focus on the application of genomics<sup>1</sup> in the area of precision health.

In the context of this competition precision health can be seen as a more evidence-based approach to decision making with regards to health care and public health. The spectrum of precision health includes health maintenance and disease prevention, through early detection, to disease prognosis and treatment of disease. Its potential value is based on an increasing understanding of variability in genes, environment, and lifestyle that affects risk factors, causes, and mechanisms of disease pathogenesis and how these factors influence the onset and outcomes of the disease state. The rapid advancement of our understanding of specific genetic and other biological traits of disease, treatment and outcomes is enabling the development and implementation of precision health approaches.

Precision health offers Canada enormous potential for improved health outcomes. It harnesses the power of genomic analysis in the realm of clinical application by making every individual's unique genetic makeup, environment and lifestyle clinically relevant.

Through this Request for Applications (RFA), activities can be targeted to any part of the precision health spectrum but must demonstrate the potential to contribute to a more evidence-based approach to health and thereby improve health outcomes, and/or have the potential to enhance the cost-effectiveness of the health-care system. Proposed projects should attain concrete deliverables by the end of the funding period that have the potential to be subsequently translated into valuable treatments, tools or improved health-care policies and practices. In order to maximize the effectiveness of this RFA in advancing genomics research and its application in Canada, rapid sharing of the outputs of the research (e.g., publications, data and resources) is required (see [Genome Canada Data Release and Sharing Policies](#)).

CIHR is particularly interested in partnering on projects with a focus on large-scale implementation with comparative cost-effectiveness evaluation, rare diseases, breast cancer and/or HIV/AIDS as outlined in Appendix 2.

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<sup>1</sup> The term genomics is defined here as the comprehensive study, using high throughput technologies, of the genetic information of a cell or organism, including the function of specific genes, their interactions with each other and the activation and suppression of genes. The definition also includes related disciplines such as bioinformatics, epigenomics, metabolomics, metagenomics, nutrigenomics, pharmacogenomics, proteomics and transcriptomics.

Please note that in addition to this RFA, Genome Canada and CIHR have other funding mechanisms that could be used to support different types and stages of research in the area of precision health. These include Genome Canada's on-going programs such as the Genomic Applications Partnership Program (**GAPP**), which funds downstream research and development (R&D) projects addressing real world challenges and opportunities as identified by industry, government, not-for-profits and other "receptors" of genomics research as well as other future opportunities including Bioinformatics and Computational Biology (B/CB) programs where support for research into the development of advanced computational tools to address data challenges associated with the management of "big data" related to precision health will be eligible. The CIHR's opportunities include CIHR's upcoming **Personalized Medicine Signature Initiative Catalyst Grants** competition which is aimed at improving personalized health through three identified priority areas; the development of novel e-Health apps to improve patient empowerment and shared decision making; the development of predictive analytic models that can stratify patients and communities by expected outcome and risk; and the mining of existing databases to identify sex-drug-gene interactions.

## **2. Objective**

The 2017 Large-Scale Applied Research Project Competition in Genomics and Precision Health aims to support projects that will demonstrate how genomics-based research can contribute to a more evidence-based approach to health and, thereby, have the potential to improve health outcomes, and/or enhance the cost-effectiveness of the health-care system.

Applicants must demonstrate how their proposal will produce concrete deliverables by the end of the funding period that have the potential to be subsequently translated into valuable treatments, tools or improved health-care policies and practices. Applicants will need to provide an assessment of the value of the precision health-care approaches proposed in a health delivery context.

To ensure that the objectives of the RFA are met, all applications will be evaluated according to the criteria established for the competition, i.e., 1) quality of the research proposal; 2), social and/or economic benefits; and, 3) management and financial aspects (see Appendix 1).

## **3. Parameters of the Competition**

- There is approximately \$44<sup>2</sup> million available for this competition from Genome Canada and up to \$26.5 million from CIHR.
- At least 50% of the requested funding for eligible costs for each project must be obtained through co-funding from other sources.
- Genome Canada/CIHR will invest a maximum \$5 million in an individual project.
- In keeping with Genome Canada's mandate to invest in large-scale research, projects with a total budget of less than \$2 million will not be considered unless very well justified.

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<sup>2</sup> Conditional upon the signing of an agreement with the Federal Government pertaining to funds announced in Budget 2016.

- Successful projects will be awarded funding for a term of up to four years.

#### 4. GE<sup>3</sup>LS<sup>3</sup>

While genomics has the potential to have significant impact in the health area there remain barriers to the adoption and uptake of the outcomes from this research into the health-care system. In this competition, the applied GE<sup>3</sup>LS research should assist in the effective translation of research results into practice and policy, and the uptake of genomic-based applications into the health-care system. GE<sup>3</sup>LS research may be conducted in two forms:

- **Large-scale GE<sup>3</sup>LS research projects:** These projects investigate in a comprehensive, innovative and interdisciplinary manner factors affecting the advancement, adoption, evaluation and governance of genomics advances in health. Project outputs should be of a scope and depth to make a significant contribution to the uptake of genomic applications, while also making significant theoretical and/or methodological contributions to the study of genomics science, technology and innovation. Large-scale GE<sup>3</sup>LS research projects are expected to demonstrate active collaboration with the genomics scientific community and potential end-user communities in the planning of the research as well as its conduct, and project findings are expected to have the potential to enhance practices or policies within these communities. This may entail sustained interactions with other large-scale projects and/or their integrated GE<sup>3</sup>LS components funded through this competition.
- **Integrated GE<sup>3</sup>LS research:** All other projects must include an integrated GE<sup>3</sup>LS research component. The overarching objective of integrated GE<sup>3</sup>LS research is to investigate the relevant factors that will impact the advancement and application of the proposed genomics research. Projects also support collaboration between genomic scientists and GE<sup>3</sup>LS researchers in all aspects of the project (including research management and oversight). Integrated GE<sup>3</sup>LS research should be closely related to the overall project objectives, deliverables and potential social and/or economic benefits. The scope should be narrower than in large-scale GE<sup>3</sup>LS research, but the depth of the investigation must be sufficient to provide findings that can influence project direction, assist in the application and adoption of the project's deliverables, and have value to the broader sector.

Following the funding decisions on this competition, Genome Canada will determine if additional mechanisms are required to maximize the GE<sup>3</sup>LS research and the overall social or economic benefits that can be realized through its translation. For example, to the extent that integrated GE<sup>3</sup>LS research

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<sup>3</sup> The acronym GE<sup>3</sup>LS stands for "Genomics and its Ethical, Environmental, Economic, Legal and Social aspects". However, it should be understood broadly as genomics-related research endeavors and related activities undertaken from the perspective of the social sciences and humanities. Therefore, it is not strictly limited to disciplines that make-up the acronym but rather encompasses all those that rely on quantitative and qualitative methodologies to investigate genomics in society, and help establish a basis to inform applications, practices and policies. In the context of this RFA, it can also include approaches from a wide range of disciplines including but not limited to: implementation research, health administration, health management, health services research, health technology assessment, real-world evaluation and comparative effectiveness research.

components across different projects and/or stand-alone GE<sup>3</sup>LS research projects are using similar research approaches, are addressing the same research area or are focused on the same overarching objectives, additional support may become available to facilitate exchanges or the establishment of networks, so that through collaboration the GE<sup>3</sup>LS research components may have a greater impact.

## 5. Eligibility of Proposals

To be eligible for this competition, proposals must:

- respond to the objectives of the competition;
- include genomics approaches as essential components in terms of importance to the overall outcomes of the project; and,
- be of a scale and scope such that they are able to address challenges requiring a genomics approach, be internationally competitive and have the potential for major impact.

To be eligible for CIHR partnership funding applicants must satisfy the requirements for the competition as outlined above as well as any additional requirements put forth by CIHR as described in Appendix 2.

Applicants are also encouraged to integrate sex- and gender-based considerations in their study design (i.e., samples disaggregated by sex, and sex-specific associations reported, where applicable). This is of particular relevance in the areas of primary data collection and analysis of data from human participants.

Projects must be sufficiently advanced such that the outcomes of the research are tangible and include concrete deliverables that will advance the field toward future implementation within the health-care system or lead to changes in public health policies. For example, studies requiring patient samples would normally be expected to have access to samples, or have a feasible plan for such access, at the time the project is to be initiated in order to produce concrete deliverables by the end of the four-year project.

This RFA provides an opportunity for research teams to propose large-scale projects that would be part of even larger national and international research initiatives (e.g., epigenome, human microbiome, human proteome, rare diseases), as long as other eligibility criteria are met.

Projects components (e.g., certain types of clinical trials) that would normally be funded solely by industry are not eligible.

**NOTE:** Studies whose major focus is the health of organisms other than humans are not eligible. Projects using non-human systems that have direct applicability to human health could, however, be eligible for this competition.

While this RFA targets genomics and precision health, it is not limited to any particular research area or disease. The types of studies that would be eligible include, but are not limited to, the following:

- development of markers that can inform dietary or behavioural choices in disease prevention strategies;

- characterization of the microbiome and its association with personalized diagnostic assessment, risk stratification, and/or disease prevention;
- development of tools for more timely diagnosis, treatment, and/or prevention of pathogenic diseases impacting human health;
- development or enhancement of diagnostic tools for screening programs;
- discovery of genomic markers or variants leading to new treatments, devices and/or diagnostics;
- use of genomic data to identify novel targets/variants in disease for the development of new therapies or repurposing of existing drugs;
- development of computational methods that will enable translation of genomic discoveries to the clinic;
- development and analytical validation of clinical tools based on findings that have already been clinically validated elsewhere, to facilitate implementation in Canada;
- applying an implementation science approach to advance the integration of genomics in the health-care system by investigating factors such as social, behavioral, economic, and management practices; or,
- investigating the clinical utility and cost effectiveness of implementing pharmacogenomic approaches, genomics-based diagnostic testing, or other genomic-based methods of patient and community stratification, into the health-care system as compared to standard of care.

## 6. Social and/or Economic Benefits for Canada

All applications must describe, with supporting evidence, the concrete **deliverable(s) that will be realized by the end of the project** that have the potential for subsequent translation into improved health outcomes and/or enhance the cost-effectiveness of the health-care system. Eventual benefits could include, for example, adoption of a new technology or treatment, a change in clinical practice guidelines, a change in public health policies, an application of an existing drug to a new indication, or a reduction in the number of adverse drug reactions. In addition, there could be other positive impacts on society, the economy (e.g., development of products with commercial potential), quality of life, or the environment.

Proposals that make a strong case that the project deliverables can and will be translated into significant social and/or economic benefits within as short a time-frame as possible after the end of the project are particularly encouraged, taking into consideration what is reasonable for the proposed deliverables.

Where applicable, projects should also consider how to transfer successful models of precision health approaches into less well-served communities.

Applications must include a plan which explains the next steps of how the deliverables from the research will be transferred, disseminated, used, and/or applied to realize the social and/or economic benefits. Applicants must also include an assessment of the value of the benefits (including economic aspects, where applicable) explaining how the outcomes of the project will potentially contribute to a more evidence-based approach to health and, thereby, improve health outcomes, and/or enhance the cost-effectiveness of the health-care system. This plan could include, where applicable, elements of patient empowerment and patient-reported outcomes. It would be expected that studies with a goal of developing a new procedure or test should address the receptivity of a health-care delivery organization to these technologies in their plan. Once funded, the project teams will be required to further elaborate

on the path forward to ensure that the proposed deliverables are realized in the stated timeframe and within the approved budget. The project's Research Oversight Committee (see 10.2) will assess the plan on an on-going basis.

## 7. End-User Engagement

All projects must clearly demonstrate end-user engagement in the development and execution of the research plan in order to help ensure receptor uptake and practical applicability or clinical utility of the research. "End-users" in the context of this RFA can be defined as those who are able to use the information generated through research to make informed decisions on issues such as health practices, policies, programs and product development. Examples of end-user organizations include publicly funded health-care delivery organizations, health technology assessment organizations, patient groups and companies (e.g., molecular diagnostic, pharmaceutical and/or biotech companies). Examples of the types of individuals who could represent end-user organizations on the project team include health-care practitioners, health-care administrators and decision-makers in the public and private sectors.

End-users must be clearly integrated into the project team in the form of a project team member, collaborator and/or member of the management team. End-users are encouraged to actively collaborate in the priority setting and conduct of research as well as in summarizing, distributing, sharing, and applying its resulting knowledge. Co-funding would clearly demonstrate end-user interest in the project's potential deliverables, although it is not a requirement for an end-user organization to contribute to the co-funding required.

## 8. Competition Timeline

**Applications must be submitted to Genome Canada through a Genome Centre. The competition timeline outlined below only includes Genome Canada's deadlines. Please contact your Genome Centre for further information on their process and internal deadline dates, as these could be a month or more earlier than the Genome Canada deadline for certain steps of the competition.**

End of January 2017	Launch of competition
March 16, 2017	Deadline for submitting registrations to Genome Canada
May 11, 2017	Deadline for submitting pre-applications to Genome Canada
Early July, 2017	Applicants notified of results of pre-application
October 5, 2017	Deadline for full applications to Genome Canada
Late-November 2017	Review committee meets (including meetings with applicants)
Mid December 2017	Decisions by Genome Canada and CIHR

## 9. Application Process

Applicants are required to apply for funding through their regional Genome Centre. The application process is comprised of three steps: Registration, Pre-Application and Full Application.

### 9.1. Registration

A brief Registration form will be used to provide early guidance on elements such as who is applying, what they are planning to do, research areas including integrated GE<sup>3</sup>LS, expected deliverables, approximate budgets and suggested reviewers. This allows for screening of eligibility by the Genome Centres and facilitates the early selection of reviewers for the peer review process. Information from eligible Registrations (i.e., name of project leader(s), lead institution, title of project, research areas and keywords) will be posted on the Genome Canada website to facilitate the identification of areas of potential synergy between applications from across the country so that applicants can consider engaging with other researchers on a common project. This will also make possible the exchange of required information between project teams and genomics technology service providers such as Genome Canada supported Genomics Technology Platforms.

### 9.2. Pre-Application

For the **Pre-Application**, applicants will be asked to submit a short description of the following:

- the proposed research, including an integrated GE<sup>3</sup>LS research plan,
- expected deliverables of the research;
- the potential socio-economic benefits of the research; and,
- how the team will engage end-users in the project.

Also, please see Appendix 2 for additional requirements at the pre-application stage for applications requesting CIHR funding.

Pre-applications will be reviewed in a two stage process. The first stage involves an initial review that will be done “at-home” by a College of Reviewers who will evaluate the Pre-Applications, focussing on the quality of the research plan and the potential for social and/or economic benefits. College reviewers will provide a rating for the quality of the research proposal and potential for social and/or economic benefit, and the mean score for each of these categories will be calculated separately. A ranking list of the Pre-Applications, based upon the mean of the scores for both criteria (quality of the research proposal and social and/or economic benefits) will be prepared. The Pre-Applications with the lowest scores will not be considered further.

The second stage will involve review by a Pre-Application Review Committee (PARC) with broad expertise in research including GE<sup>3</sup>LS, technology development, research management and the translation of research results in areas relevant to the competition. This committee will consider the

College reviews and make a final recommendation to Genome Canada on which Pre-Applications should be invited to submit a Full Application.

The proposals will again be checked for eligibility to the program. Only the most competitive Pre-Applications will be invited to submit full applications. Information from approved Pre-applications (i.e., name of project leader(s), lead institution, title of project, research areas and keywords) will be posted on the Genome Canada Website to further facilitate the exchange of information between project teams and genomics technology service providers such as the Genome Canada supported Genomics Technology Platforms.

### **9.3. Full Application**

Those applicants successful at the Pre-Application stage will be asked to submit a full application. Full applications must address the evaluation criteria established for the competition, i.e., 1) quality of the research project; 2) social and/or economic benefits; and, 3) management and financial competency. A final check for eligibility will be carried out. A multidisciplinary committee of experts, with expertise in assessing all of the review criteria, will be established to review applications. The review committee will meet with and interview representatives from each project through a face-to-face meeting. After the review committee completes its deliberations and develops an overall ranking list, it will provide its recommendations to Genome Canada and CIHR, who have the final authority for funding decisions.

**The evaluation processes may be adjusted where warranted by the complexity of proposals received or other relevant factors. Any changes will be communicated through Genome Canada's website and through the Genome Centres.**

See Appendix 2 for additional requirements at the full application stage for applications requesting CIHR funding.

## **10. Project Management and Oversight**

### **10.1. Project Managers**

All approved projects must have a dedicated project manager. Project managers coordinate administrative and reporting requirements and support the project's research enterprise.

### **10.2. Research Oversight Committees**

All Genome Canada funded projects will have a Research Oversight Committee (ROC) constituted by, and reporting to, the Genome Centre(s). The ROC reports to the Genome Centre on the progress being made by the project and makes recommendations to the funders regarding continued funding, as well as providing advice and guidance to the research team to help ensure that the project achieves its stated objectives and milestones. The membership of the ROC must be completely independent from the project, with no real or perceived conflicts of interest and should be composed of experts who will work with the Genome Centre and the funders to maximize the successful outcomes of the project. A portion of the funds awarded to each project will be designated to cover costs associated with the project's ROC.

## 11. Co-Funding

Genome Canada requires that at least 50% of the requested funding for eligible costs for each project be obtained through co-funding from other sources. The Genome Centres, working with the applicants, are responsible for securing co-funding. Co-funding for this competition must be for research activities that are an integral part of the Genome Canada approved project and must be for eligible costs specifically requested in the Genome Canada budget form in order to be considered as an eligible co-funding source. See the [Guidelines for Funding Research Projects](#) for more details.

## 12. Contacts

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Stéphanie Lord-Fontaine	Genome Québec	slord-fontaine@genomequebec.com	(514) 398 0668 x204
Robin Harkness	Ontario Genomics	rharkness@ontariogenomics.ca	(416) 673 6594
Chris Barker	Genome Prairie	cbarker@genomeprairie.ca	(306) 229-7724
Gijs Van Rooijen	Genome Alberta	vanrooijen@genomealberta.ca	(403) 210 5253
Catalina Lopez-Correa	Genome British Columbia	clopez@genomebc.ca	(604) 675 1035

## Appendix 1. Evaluation Criteria

Proposals submitted to Genome Canada are evaluated via a rigorous independent peer review process to assess their research merit and potential for social and/or economic benefits for Canada, as well as to ensure that sound management and financial practices are implemented.

### Eligibility Criteria

Each proposal will be reviewed for eligibility at each stage of the application process. The following criteria will be used:

- Does the proposal respond to the objectives of the competition?
- Does the proposal include genomics approaches as essential components in terms of importance to the overall outcomes of the project?
- Is the proposal of a scale and scope such that it is able to address challenges requiring a genomics approach, be internationally competitive and have the potential to have major impact?

If considered eligible, the proposal will be reviewed using the criteria described below:

The review criteria fall into three categories:

- 1) Research Proposal;
- 2) Social and/or Economic Benefits for Canada; and,
- 3) Management and Finance

Note that the descriptive phrases which follow the criteria below are not all-inclusive.

### 1. Research Proposal

#### Including Research on Ethical, Environmental, Economic, Legal and Social Aspects of Genomics (GE<sup>3</sup>LS)

- Research Context and Originality
  - To what extent does the proposed research lead, extend and/or complement national and international work in the area?
  - To what extent does the proposed research reflect creative, original thinking?
  - To what extent is the research relevant to the end users identified?
- Research Plans
  - How appropriate are the methods and approaches in terms of the research objectives? This includes but is not limited to:
    - appropriateness of the plan to disaggregate data by sex and report sex-specific associations, if applicable
    - feasibility of the plan for handling data and resources
    - feasibility of the plan for enrollment of samples/subjects if the samples have not yet been collected

- robustness of the power analysis and appropriate analytical plan
  - How feasible is the research given the projected resources and time-lines?
  - How appropriate is the plan for sharing data and resources within the project and with the wider community. Does the plan comply with Genome Canada's policies on Data Release and Sharing?
- Research Expertise
  - How appropriate is the expertise of the research team in terms of realizing the research goals?
  - How well will different types of expertise be integrated?
- Research Support
  - How suitable are the available facilities, equipment and services (including services to be provided by Genome Canada supported Genomics Technology Platforms and/or other technology service providers)?
- Specific GE<sup>3</sup>LS Research Criteria (in addition to the GE<sup>3</sup>LS aspects which are considered to be included in the criteria above)
  - Does the GE<sup>3</sup>LS investigation address salient factors that will impact the advancement and application of the genomics research and are the research questions supportive of the objectives and expected outcomes?
  - Is the integrated GE<sup>3</sup>LS research plan aligned with, and complementary to, the overall project milestones?
  - Is the GE<sup>3</sup>LS research plan sufficiently robust and systematic to advance generalizable knowledge in relevant academic fields?

## 2. Social and/or Economic Benefits for Canada

- Deliverables
  - To what extent have the applicants identified appropriate deliverables in terms of their potential to be translated into improved health care and public health, clinical utility and/or practical applicability in a health system context?
  - What is the probability that the deliverables will be achieved by the end of the funding period?
- Expected Benefits
  - How significant are the anticipated benefits described in the proposal in terms of their potential of contributing to a more evidence-based approach to health and, thereby, improve health outcomes, and/or enhance the cost-effectiveness of the health-care system? Where applicable, how significant would the benefits be to health care and public health in less well-served communities?
  - How convincing is the assessment of the value of the benefits (including economic aspects, where applicable)?
  - Will the benefits be realized within a short time-frame after the end of the project, taking into consideration what is reasonable for the proposed deliverables?
  - Are the benefits realistic and achievable within the timeframe proposed?

- Strategy for Realizing Benefits
  - How strong is the plan for knowledge translation and development of benefits, i.e., how well does the plan explain the next steps of how the deliverables from the research will be transferred, disseminated, used, and/or applied to realize the social and/or economic benefits?
  - How closely aligned is the plan for knowledge translation with the GE<sup>3</sup>LS research and the overall deliverables and outcomes of the project?
- Expertise for Realizing Benefits
  - How appropriate is the expertise of the team that will further develop and implement the strategy for realizing benefits?
  - To what extent are likely end-users involved in the project and the strategy to realize benefits (e.g., where applicable, comment on the partnership with a health-care delivery organization, the inclusion of the patient's perspective, health technology assessment requirements and/or other end-user involvement)?
  - If the strategy includes commercialization, to what extent has appropriate technology transfer expertise been included?

### **3. Management and Finance**

- Management Plans and Expertise
  - How well does the management plan cover project governance, accountabilities of personnel, and processes for decision-making on research direction and strategy for realizing benefits?
  - How realistic is the project schedule given the likely need to “ramp-up” activities at the front end?
  - How credible is the management plan in terms of coordination of current and future partnerships?
  - Are the proposed arrangements with Genome Canada supported Genomics Technology Platforms and/or other technology service providers sufficiently articulated to ensure that the provider is able to complete the requested service(s) in the timeframe required by the applicant?
  - To what extent do the project leaders have experience in managing large-scale projects involving research and the application of results?
  - How appropriate are the plans to ensure that an adequate number of highly qualified personnel (HQP), both support personnel such as technicians and trainees such as post-doctoral fellows, are available to meet the needs of the proposed research through recruitment and/or training?
- Budget and Expenditure Controls
  - How reasonable is the proposed budget in terms of the anticipated level of effort and deliverables?
  - To what extent are the budget and proposed expenditures well-documented and eligible per the guidelines?

- To what extent does the proposal provide assurance that expenditures from a funded project would be closely and critically monitored?
- Financing from Co-Funders
  - To what extent is the proposed co-funding plan well-documented, eligible and feasible?
  - Does the proposed co-funding directly support the objectives of the project?
  - How likely is it that the project will be able to secure at least 75% of the co-funding for eligible costs at the time of release of funds?

## Appendix 2. Partnership with the Canadian Institutes of Health Research (CIHR)

### Description

Genome Canada and CIHR, through its Personalized Health Initiative, Institute of Cancer Research, Institute of Genetics and HIV/AIDS Research Initiative will jointly support research projects in the area of genomics and precision health, using the 2017 Large-Scale Applied Research Project Competition in Genomics and Precision Health.

### Background

CIHR is pleased to announce a strategic partnership with Genome Canada to collectively advance the Personalized/Precision Health Research agenda. CIHR's participation in this competition marks the launch of the CIHR Personalized Health Initiative that builds on the expertise developed in the Personalized Medicine Signature Initiative and the eHealth Innovation Initiative. This participation advances the following CIHR objectives:

- Assess the value of personalized health care for effective implementation and delivery;
- Develop data integration and analysis tools that guides implementation projects;
- Optimize patient empowerment in personalized health care approaches;
- Increase researcher awareness about the importance of integrating sex and/or gender-based analysis into personalized/precision health approaches.

This strategic partnership provides an opportunity to maximize the effectiveness of the research communities, infrastructure and resources of both Genome Canada and CIHR. Genome Canada funded researchers provide leadership in large-scale applied genomic research projects and Genome Canada funded Genomics Technology Platforms allow access to world leading centres applying genomic and other “omic” technologies to scientific problems. CIHR brings access to their extensive health research community with expertise in health economics, health services and health policy, clinical epidemiology and clinical trials, eHealth, clinical and basic research as well as existing and prospective biobanks.

CIHR's participation in this competition represents the first large-scale project competition to be launched under the CIHR Personalized Health Initiative. A key research priority area underscoring the CIHR Personalized Health Initiative focuses on maximizing and leveraging all previous investments in personalized medicine and eHealth by driving evidence-based implementation of personalized health that will identify solutions that can contribute to more cost-effective and sustainable healthcare. The best available evidence to evaluate the impact of Personalized/Precision Health initiatives will be produced through innovations in real world data application and data management. The initiative will also include investment in eHealth applications to develop new and innovative tools and approaches required to support implementation of personalized health delivery and interventions that include a sex-and-gender-based analysis approach in the context of an aging population that is increasingly in need of being stratified to allow more targeted interventions.

## Funds Available

CIHR has allocated up to \$26.5M to fund individual projects on a 1:1 funding basis with Genome Canada

CIHR's financial contributions for this initiative are subject to availability of funds. Should CIHR funding levels not be available or are decreased due to unforeseen circumstances, CIHR reserves the right to reduce, defer or suspend financial contributions to grants received as a result of this funding opportunity.

## Eligible Research Areas for CIHR Funding

Applications must be in the area of Genomics and Precision Health and address all the eligibility criteria as outlined in the RFA.

Eligible Research Areas for CIHR Funding	
	Level of Investment
<b>A. Large-scale projects to deliver on the CIHR Personalized Health Initiative</b>	\$14 million
Projects should include personalized health approaches that are ready to be tested in the real-world setting. Projects will be required to assess comparative cost-effectiveness and outcomes of personalized health approaches as compared to standard-of-care. Funded teams are required to partner with an existing publicly funded health care delivery organization (e.g. a hospital clinic or health authority) that has the technological and organizational infrastructure needed to support personalized health demonstration projects. Receptivity of a health system at the regional or provincial level will be essential to facilitate uptake and enable potential scale up of projects outcomes. Projects must also include patient empowerment approaches, patient-reported outcomes, sex-and/or-gender-based analysis, and age stratification. Successful models of translation of personalized health approaches into less well-served communities should be considered. Composition of project teams will be flexible based upon the desired outcomes or goals of the personalized health approaches being evaluated.	
<b>B. Large-scale rare diseases projects</b>	\$5 million
CIHR Institute of Genetics (CIHR-IG) will consider partnering on individual research projects focused on rare diseases. In addition, projects must comply with International Rare Diseases International Research Consortium principles and guidelines.	
<b>C. Large-scale breast cancer projects</b>	\$5 million
CIHR Institute of Cancer Research (CIHR-ICR) will consider partnering on individual research projects focused on breast cancer, specifically hard to treat/metastatic disease.	
<b>D. Large-scale HIV/AIDS projects</b>	\$2.5 million
The CIHR HIV/AIDS Research Initiative - which is responsible for implementing the research components of the Federal Initiative to Address HIV/AIDS in Canada and the Canadian HIV Vaccine Initiative (CHVI) - will provide funding for applications that have a primary focus on HIV/AIDS. Through this funding opportunity, the CIHR HIV/AIDS Research Initiative encourages applications that are aligned with the strategic research areas outlined within the 2015-2020 HIV/AIDS Research Initiative Strategic Plan.	

## **CIHR Guidelines, including Eligibility, Allowable Costs and Conditions of Funding**

The general guidelines of each of the participating partner agencies must be followed, See the [CIHR Partnership Funding Opportunity](#) for a complete listing of all CIHR guidelines and the associated details.

At the Pre-Application stage, and as a condition of funding, the Project Leader(s) must demonstrate knowledge of how to integrate sex and gender considerations into research, by submitting the certificate of completion of one of the CIHR Institute of Gender and Health's three online training modules. Please select and follow the appropriate training module that applies to your research project. [<http://www.cihr-irsc.gc.ca/e/49347.html>]

### **Relevancy Review**

CIHR will have access to the complete Pre-Applications and Full Applications submitted to Genome Canada to assess the alignment of an application with the specific research priority areas as outlined in the table above. The final relevance review will be completed prior to the review of the full applications.

### **Contact Information at CIHR**

For questions on CIHR funding guidelines and the competition process contact CIHR's contact centre:

Telephone: 613-954-1968

Toll Free: 1-888-603-4178

Fax: 613-954-1800

[support@cihr-irsc.gc.ca](mailto:support@cihr-irsc.gc.ca)