REQUEST FOR APPLICATION
OMICS DATA AGAINST CANCER (ODAC) COMPETITION

Cancer research in omics*[1] has rapidly evolved over the past decades and the datasets available and generated today are of increasing size and depth as well as complexity. This bears great potential for new discoveries on the way to improve patient well-being. Génome Québec, Oncopole and IVADO have joined forces to launch the *Omics Data Against Cancer* Competition (ODAC), with the goal to leverage pre-existing omics datasets through development of artificial intelligence methods/applications.

This funding consideration is open to researchers affiliated with any of the university research institutions in Québec.

1. OVERVIEW
1.1. Competition description
- Competition name: *Omics Data Against Cancer* (ODAC)
- Competition type: Grant for multidisciplinary team
- Type of research: Applied*[2] research
- Requested research areas: artificial intelligence in the context of omics and cancer research

1.2. Goals
- Support the development of artificial intelligence applications and methodologies that can leverage cancer research datasets.
- Promote multidisciplinary research in artificial intelligence, omics and cancer research.
- Lay the groundwork for subsequent research and make resulting tools, methods, algorithms and models from the project available to the research community (see **Appendix II**, publication policy).

Note: Wet lab activities are not eligible in this competition.

1.3. Deadlines

February 6, 2020	Competition launch
March 9, 2020, noon (EDT)	Submission deadline LOI – by email to DOCC-ODAC@genomequebec.com
March 13, 2020	Notification of eligibility
June 1, 2020, 5 p.m. (EDT)	Submission of application documents, including budget – by email to DOCC-ODAC@genomequebec.com
End of September 2020	Notification of decision
October 1, 2020	Project start date

Note: Génome Québec, IVADO and Oncopole reserve the right to adjust the schedule if required. Such adjustments will be communicated through the competition's website.

Submission by email or for information:
DOCC-ODAC@genomequebec.com

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*[1] Omics: defined as comprehensive studies 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 epigenomics, metabolomics, metagenomics, nutrigenomics, pharmacogenomics, proteomics and transcriptomics. Projects using medical imaging, electronic health records or wearable devices data are welcome if linked omics data (as defined above).

*[2] Applied project: defined as a project that will lead to concrete research project outcomes with the potential of having clinical applicability and of improved well-being of cancer patients. Projects should not reflect a mere exploration of basic concepts of artificial intelligence. Proof of concept in a laboratory/clinical setting is not required. Commercialization partners are not required for this competition.

2. COMPETITION DESCRIPTION

2.1. Research area supported
The ODAC competition supports research for the development of artificial intelligence solutions (tools, methods, algorithms and models) for the field of omics research, in the sector of cancer research. This includes methodological research in artificial intelligence (machine learning, operations research, statistics). Research project outcomes should have the potential to improve patient well-being in the short or long term and could fall into the following areas pertaining to cancer research (without being limited to the following): drugs target identification, design of molecules, prediction, diagnosis, treatment and management of cancer patients (based on their omics' makeup), integration of multi-omics datasets.

In order to lead to solutions interesting for the research community, clinicians or other users, the research supported by this competition must be collaborative and multidisciplinary. Projects are expected to make a significant contribution in the field of artificial intelligence and must clearly describe the potential benefits to the omics cancer research community.

2.2. Available Funds
- Funding between $100k and $150k per year for two years will be awarded to the selected projects. The maximum amount per project is $300k.
- The overall funding envelope for the competition is $1.5M.
- No co-funding is required for this competition.

2.3 Eligibility of projects and teams
- The application must respond to the goals of the competition and develop artificial intelligence solutions aiming to leverage omics data from cancer research.
- Teams must include all the expertise required to fulfill the project's aims. This includes expertise in artificial intelligence as well as an expertise in genomics in the context of cancer research. This is to ensure that project outcome will be aligned to the omics cancer research community's needs.
- Any project leaders, co-investigators, and collaborators to be funded through this competition must receive a salary for a full time or part-time position in a recognized Québec university and have the status of University Researcher or Clinical University Researcher as stated in the FRQ Common General Rules.
- Postdoctoral fellows can be members of the team as collaborators but are not authorized to manage research funds.
- Each project leader can submit only one application as project leader #1.
- Sharing of resources and expertise through collaboration both at the national and international level is encouraged, however, funds can go only to Québec-based institutions.

2.4 Competition Rules
The rules applicable for this competition are detailed in **Appendix II.**

2.4.1 Eligible expenses (overview)
This competition allows for the funding of:
- Scholarships for graduate and undergraduate students
- Scholarships or salaries for postdoctoral researchers
- Salaries for professionals
- Travel expenses
- Hardware, software, databases and access to computing resources (including laptops, desktops and computing time on external servers), up to a total limit of 15% of the total budget).

Ineligible costs include:
- Salaries, benefits and associated costs for the performance of wet lab work
- Costs for high performance computing infrastructure (servers, hardware exceeding 15% of total budget)
- *De novo* data generation (wet lab/sequencing).

For details regarding eligibility of expenses, please consult the competition rules (**Appendix II**).

2.4.2 Financing requirements
- For projects requiring ethical approval, the funds will not be released until approval is obtained.
- For projects involving human subjects, a basic training in research ethics is mandatory. This includes all research projects involving:
  - o Participation of human beings as subjects; and/or
  - o Use of administrative, scientific or descriptive data from human beings.
- Signed legal documents between the university and the funder(s) are a prerequisite to the disbursement of funds.

2.5 Availability of research data
This competition is supported through public funds, projects are therefore encouraged to render their research results publicly accessible within 12 months from publication. In this context, researchers are asked to develop a dissemination plan.

2.6 Administrative Screening
Applications will go through an administrative screening. The peer review committee will not receive applications:
- if they do not meet the format constraints (missing sections, excessive number of pages, etc.);
- that are not presented by an eligible project leader;
- if the same project leader submitted multiple projects as project leader #1.

2.7 Evaluation of applications
The project will be evaluated by an independent peer review committee which will submit its recommendations to Génome Québec. Projects will be selected for funding based on excellence and the availability of funds. Please see **Appendix I** for evaluation criteria.

2.8 Application process and elements
The application process consists of two elements: Letter of intent and application.
All documents must be provided by email to DOCC-ODAC@genomequebec.com by the deadlines provided under 1.3.. Any questions concerning this competition can be forwarded to the same address.

a) Letter of intent
Letter of intent form to be completed, including research summary (1 page), keywords, names of team members (including affiliation and expertise), estimated total budget and suggestions of scientific experts to evaluate the application.

b) Application
- Application form to be completed
- CCVs of the project leader and team member(s)
- Justification of the team composition (max. ½ page)
- Description of the project (max. 4 pages)
- Reference list (max. 1 page)
- Budget
- Budget justification (max. 2 pages)
- Dissemination Plan (max. 1 page)
- HQP training plan (max. 1 page).

Appendix I: EVALUATION CRITERIA

Applications submitted will be evaluated via an independent peer review to assess research merit and potential for benefits to the research community.

Evaluation of projects

1. **Letter of intent:** Letters of intent will be selected for eligibility, including if project covers the required research areas (artificial intelligence in the context of omics*[1] and cancer research), the eligibility of the status of the project leader(s) and budget. Should a project leader submit more than one project as project lead, the project received 2nd will be automatically rejected. Only project leaders who present a letter of intent that was deemed eligible will be invited to submit an application.

2. **Application:** Applications will be reviewed by an independent peer review, according to the following criteria (relative weighting of criteria in parentheses):

I. Project (70%)
Research project (30%):
- Relevance to the goals and domains of the competition:
  - Support the development of artificial intelligence applications and methodologies that can leverage cancer research datasets
  - Promote multidisciplinary research in artificial intelligence, omics and cancer research
  - Lay the groundwork for subsequent research and make resulting tools, methods, algorithms and models from the project available to the research community.
- Research excellence, originality and clarity of the application, including the objectives.

Feasibility (20%):
- Project feasibility, including, but not limited to feasible timeline, available staff, appropriateness of the methodology and timely access to datasets.
- Risk management, including, but not limited to strategies to address data bias, data safety, and timely recruitment of highly qualified personnel.
- Reasonable and well-justified budget.

Project outcome (20%):
- Benefit to the user, including the importance of the problem to be addressed and the potential impact of the proposed approach to solve the challenge.
- Existence of a reasonable and valid dissemination plan detailing how solutions will be shared with the community and the expertise on the team to put the plan into action. The dissemination plan must be in accordance with the [open access policy for dissemination of research](#) (see 2.5).

II. Team and individuals (30%)
Team (15%):
- Excellence of the researchers involved in the application (according to their level of advancement in their career) and alignment of their expertise with the research to be conducted.
- Justification of the team composition (multiplicity of expertise in artificial intelligence, omics and cancer research and added value of the multidisciplinary collaboration.

Preparation of future talents (15%):
- Presence of early career researchers (recently hired professors, postdoc researchers) on the teams is an asset.
- Involvement of students (undergraduate and graduate) and postdoctoral researchers
- Hiring and training of research professionals
- International collaborations

Equity, Diversity and Inclusion: Considerations and efforts to promote an equitable and inclusive research environment are encouraged. Please see [IVADO's EDI framework](#) for guidance.

Appendix II: COMPETITION RULES

The following rules and policies apply for this competition:

Financial rules

The duration of the project funded is 2 years, from October 1, 2020, to September 30, 2022, with the possibility to apply for a no-cost extension of half a year, pending approval by the funders. All funds have to be spent by the approved end of the project, in line with the parameters mentioned in the notice of award. Any remaining unspent funds must be returned to the respective funding partner at the latest 3 months after the approved project end date.

Funding disbursement is dependent on requested financial and scientific reports being received in a complete and timely manner. Institutions may begin incurring eligible expenses as of the date of the notice of award.

All planned project expenses for this competition must be in accordance with the three financial guidelines:
- [Génome Québec financial guidelines](#)
- [Canada First Research Excellence Fund Administration Guide (CFREF)](#)
- [FRQ Common General Rules](#)

Main ineligible costs include:
- Expenses incurred outside of Québec
- Overhead cost/indirect costs
- Costs for investigator's salaries
- Computing-related costs (example: hardware and computing time) exceeding 15% of total budget

If in doubt about a specific cost, please contact DOCC-ODAC@genomequebec.com

Policies
- Project changes (including scientific, financial and personnel) will be managed by Génome Québec and subsequently approved by all funding parties.
- The support of Génome Québec, the Ministère de l'Économie et de l'Innovation, IVADO and Apogée/Canada First Research Excellence Fund, and Oncopole must be acknowledged in the dissemination of research results.
- As publicly funded organizations, Génome Québec, Oncopole and IVADO have a fundamental interest in promoting the availability of data and findings resulting from this funding opportunity, including research publications, data and algorithms/code, to the widest possible audience, and at the earliest possible opportunity and in a secure manner. We encourage that research is peer-reviewed, published in online repositories, appropriate public databases and/or journals ensuring free access within 12 months of publication. The following policies should guide dissemination of results and data management/sharing:
- [Open access policy for dissemination of research developed by FRQS](#)
- [Tri-Council data management policy](#)