Next deadline for reception of proposals: **August 28 2024**

Please note that you must notify us at least 7 days in advance of your intention to submit a proposal at the following e-mail address **appliquez-apply@cqdm.org**

If you have any questions about the eligibility of your project, please contact Alexandre Morizot, Director - Business Development, at the following address: **amorizot@cqdm.org**.

SCOPE AND RESEARCH AGENDA

The RNA therapeutics sector is rapidly expanding internationally. Thanks to its cutting-edge expertise in RNA biology, a successful track record in drug development and a thriving biopharmaceutical services industry, Quebec has many assets to draw on. Nevertheless, the industrial niche for RNA therapeutics remains relatively underdeveloped at present, while the research community is beginning to take an interest in the concrete applications arising from the major fundamental advances made in Quebec and elsewhere. To position itself as a prime location for the development of RNA innovations, it is imperative to create a pool of innovations, expertise and companies that will form the basis of a world-class economic cluster. For this reason, a group of funding organizations called CELLULE has been formed to implement an innovative approach aimed at supporting disruptive industrial innovation and responding to targeted technological challenges in the RNA therapy sector.

The CELLULE

The main objective of the CELLULE is to support the industrial development of highly competitive and promising technologies (platforms, products, processes or services) aimed at resolving the main challenges currently limiting the commercial application of RNA-based therapeutic modalities.

To this end, a bold new partnership involving Axelys, CQDM, Fonds de recherche du Québec, Génome Québec and Médicament Québec has been established to provide a dedicated funding stream to support the development of highly promising technologies relevant to RNA-based therapies. Together, the members of the CELLULE will offer personalized guidance and privileged access to a suite of programs designed to support the main stages of translational research, i.e. until the technology is sufficiently de-risked to allow the substantial arrival of private capital (for example, depending on the technologies financed: a series A, the start of clinical trials or the commercial deployment of a service). The various financing tools available within each of the partner organizations will be used to achieve this. Where appropriate, the CELLULE may also call on the expertise and funding opportunities of collaborators identified according to the nature of the proposed technologies, in order to provide targeted and effective support for the project.

Topics / current industrial needs

Drawing on Québec's strengths and expertise in areas such as artificial intelligence, medicinal chemistry and engineering, propose technologies, tools and platforms that address the following industrial challenges (submission deadline **August 28, 2024**):

1. **Development of tools to improve the design and optimization of modified RNAs in order to better predict the structure and function of mRNAs and guide RNAs.**

Examples of desired performance parameters for the technologies to be developed in order to respond adequately to the stated challenges, depending on the nature of the proposed solution.

- *New models that adequately integrate modified nucleotides into RNA structure prediction, enabling greater accuracy of structure and function predictions*
- *Ability to modify RNA sequences to achieve enhanced stability and optimized function when compared to those of products on the market/under development*

2. **Through the introduction of chemical modifications, improved therapeutic product stability (e.g. storage and transport), prolonged in vivo expression and reduced mRNA immunogenicity.**

Examples of desired performance parameters for the technologies to be developed in order to respond adequately to the stated challenges, depending on the nature of the proposed solution.

- *Enhanced/prolonged storage stability compared to existing vaccines*
- *Increased storage temperature compared to current standards (4°C or 25°C)*
- *Doubling of in vivo expression time to enable a wider range of therapeutic uses*
- *Introduction of targeted modifications to reduce mRNA immune reactivity*

3. **Improving manufacturing methods, reducing production costs and the ecological footprint of RNA therapy production.**

Examples of desired performance parameters for the technologies to be developed in order to respond adequately to the stated challenges, depending on the nature of the proposed solution.

- *Manufacturing costs reduced by over 60%.*
- *Improved synthetic pathways for the synthesis of native or modified nucleotides or oligonucleotides, reducing solvent use by 90%.*

4. **Design of new efficient delivery systems for RNA modalities, or improvement of existing systems, including the development of new administration routes to facilitate use.**

Examples of desired performance parameters for the technologies to be developed in order to respond adequately to the stated challenges, depending on the nature of the proposed solution.

- *Innovations in dosage forms*
- *Specific access to new therapeutic targets of interest*
- *Development of formulations compatible with self-administration, especially subcutaneous administration*

Eligibility criteria

Eligible applicants:

- Researchers working in a public research institution in Quebec (university and affiliated hospital, research institute, college technology transfer center [CCTT], public research center);
- Small and medium-sized enterprises (SMEs) with R&D and/or production activities in Quebec, and with a place of business in Quebec, legally constituted under current federal or Quebec legislation and registered with the Quebec Enterprise Registrar*;
- Collaboration between researchers and companies is not mandatory, although strongly encouraged. Please note that the funds available for a single researcher or company will be limited.

* Note that the participation of large corporations and foreign companies is eligible and encouraged. However, they will not be able to benefit directly from funding for internal R&D activities, for example.

Eligible projects:

In addition, the following criteria must be met for projects to be eligible.

1. R&D projects with industrial impact applicable to life sciences and directly addressing one of the industrial needs described above;
2. Socio-economic benefits generated for Quebec and for all partners involved in the project.

Evaluation and selection processes

Deadlines will be set every 3 months. Please note that the themes and industrial needs will change regularly, depending on the priority topics identified by the Industrial Advisory Committee.

The deadline for participation in the next selection round is indicated at the top of the page. Please note, however, that you must notify us at least 7 days before the deadline of your intention to submit a proposal.

In the context of this call for solutions, all proposals should be accompanied by a technological development plan leading to the commercialization of the proposed innovation, to enable the evaluators and the Industrial Advisory Committee to judge its relevance to solving the identified industrial challenge. If necessary, the project could be split into several sub-projects, to be financed by different members of the CELLULE and/or its partners.

Steps to present a proposal:

1. Contact **Alexandre Morizot**, Director - Business Development, to verify the eligibility of your project, obtain the necessary templates (budget, Gantt chart) for submitting a proposal and clarify any questions at the following address: **amorizot@cqdm.org**
2. Submit a 10-line non-confidential scientific summary, including the project title, the names and organizations of the partners, and the industrial need the project addresses, to the following address no later than 7 days before the submission date: **appliquez-apply@cqdm.org.**
3. Submit the completed proposal to the following address **appliquez-apply@cqdm.org**.

Evaluation criteria

- Feasibility and quality of the proposed technological development project
- Quality of participants and collaborations (if applicable)
- Innovative and competitive nature of the proposed technology for industry
- Suitability of the proposed technology for the problem identified
- Contribution to the advancement of the RNA therapy sector
- Socio-economic benefits for Quebec
- Structuring effect on the RNA therapy ecosystem in Quebec

Evaluation process

The main steps in the evaluation process are

- Independent scientific evaluation, based on the evaluation criteria listed above;
- Selection of promising technologies by the Industrial Advisory Committee, responsible for making funding recommendations;
- Identification of one or more funding mechanisms to support the proposed activities. This step may be iterative, require fragmentation of the project, be associated with an

obligation to reach certain milestones, and require revisions to the initial proposed plan.
- Approval of funding by the appropriate funding agency(ies).

If you have any questions about eligibility or how to set up your project, please contact **Alexandre Morizot**, Director - Business Development, at the following address: **amorizot@cqdm.org.**

Mentoring and support for selected technologies

Selected projects will be supported by industrial mentors and investors to help them bring their innovation to market more quickly. In addition, fast-track procedures will be put in place to maximize the potential of financing offered by CELLULE members and accelerate the development of selected technologies.

Financing parameters may vary according to the funding program applicable to the project, the nature of the partners and the level of technological maturity of the innovation.

Eligible expenses

Eligible expenses generally include:

- Student scholarships, salaries and benefits for personnel working on the project;
- Laboratory equipment, consumables and supplies, as well as animal facilities and platforms;
- Travel expenses (project-related travel, collaborations, conferences) and knowledge dissemination costs;
- Intellectual property costs (patent applications, patent maintenance fees for the duration of the project);
- Rental or purchase of small equipment up to a maximum value of $25,000;
- Subcontracting expenses to companies that are not partners in the project.

Timelines

Deadline for notification of intention to submit a proposal : **August 21 2024**

Deadline for receiving the complete proposal : **August 28 2024**

Notification of selected projects : **Fall 2024**