2026 Advanced Biomanufacturing Innovations - BioCanRx Joint Summer Student Internship in Therapeutics Biomanufacturing

Overview

BioCanRx – Canada's Immunotherapy Network is a national not-for-profit organization funded by the Government of Canada. BioCanRx's mission is to accelerate the development of Canada's most promising biologically based cancer therapies into clinical trials and to grow the national cancer biotherapeutics sector through innovative research and training.

In partnership with the Advanced Biomanufacturing Innovation (ABI) Program, this new stream provides undergraduate university and college students with meaningful, hands-on bioprocess development research experience in the biomanufacturing sector. This partnership aligns BioCanRx's mandate to build highly skilled research and training capacity with ABI's focus on advancing biomanufacturing process development in Canada. The stream is open to process development projects supported by the ABI Program.

The ABI Program is funded through the Canada Biomedical Research Fund (CBRF) and is part of the Canadian Pandemic Preparedness Hub. The Hub brings together highly collaborative investigators from across Canada with complementary research interests and a demonstrated track record of working together to ensure that Canadian discoveries are translated into the medicines of tomorrow in a cost-effective and timely manner.

Through the ABI Program, a national biomanufacturing network is being established to harmonize infrastructure, technologies, bioprocess innovation, and quality systems across participating facilities in Canada. This coordinated approach aims to standardize product quality, increase efficiency, and strengthen Canada's biomanufacturing capacity.

The program will expose students to research in biomanufacturing and strengthen the workforce needed to support Canada's biomanufacturing sector.

Specific Terms of the Award

- The ABI- BioCanRx Summer Student Internship Award provides $9,000 CAD in salary support for an undergraduate or college student to work on a bioprocess research project over a 14-week full-time work term.
- Acceptance of the award is conditional upon a commitment from both the supervisor and student co-applicant that the 14-week work term will be completed in full.
- The award funding will be administered through the supervisor's academic institution.
- At the end of the placement, the student will be expected to submit a short report on the Experience and its impact on their academic or career trajectory by completing the End of Term

Form (sent to the student towards the end of their work term). The purpose of the End of Term Form is to provide BioCanRx with a high-level summary of the students' work, describe the student's academic or career plans, and provide BioCanRx with their opinion and feedback of the program.

- If an award is terminated early (e.g., if the student withdraws from their program), the student must complete a Termination Form, and unspent funds will be returned.
- Research projects must align with the BioCanRx mandate and demonstrate collaborative and translational impact.
- Important Note to Students: At the time of application, students must have identified a supervisor and made arrangements to co-apply for the award. If you are interested in a specific researcher, contact them as early as possible.

Program Key Dates

Application Deadline: February 13th, 2026
Notice of Award: Late March/Early April
Award Start Date: May 4th, 2026
Award End Date: August 28th, 2026
Submission of End-of-term Report: mid-September

Eligibility Criteria

- Applicants must be currently enrolled in an undergraduate or college program at a Canadian institution and have completed at least two semesters.
- Awardees cannot be enrolled in a graduate program while holding this award.
- Students cannot hold this award concurrently with funding from Tri-Council agencies (NSERC, CIHR, SSHRC).
- Projects must take place in the laboratories supported by the ABI Program. A list of researchers able to supervise students and project descriptions is provided below.
- Past BioCanRx students are eligible to reapply, though priority will be given to first-time participants.

Additional Training and Engagement Opportunities

Recipients will be invited to participate in professional development webinars offered throughout the summer via BioCanRx's general studentship stream

Application Procedure

Applicants must apply jointly with a proposed academic supervisor. All materials should be prepared in collaboration and submitted as one complete package.

Required Materials:

1. **Completed Application Form** (separate document).
2. **Curriculum Vitae (CV):** Prepared by the student. There is no page limit, but it must include:

    - Degree program and institution
    - Any research experience
    - Awards or scholarships
    - Publications, abstracts, or presentations (if applicable)

3. **Most Recent Undergraduate Transcript:** A legible copy or email printout is acceptable (official copy not required). The transcript must include all grades received.

4. **Statement of Interest (maximum 300 words):** The student should describe:

    - What they hope to achieve through the BioCanRx–ABI Summer Studentship
    - How the program supports their academic, professional, or personal goals

5. **Supervisor's Letter of Support:**

    - This letter should outline the student's potential, the project's value, and the supervisor's mentorship approach.
    - Letters must be signed (electronically or by hand) and sent directly by the supervisor to Julie Jonkhans (jjonkhans@biocanrx.com)
    - All documents must be submitted as .pdf files.

Submission:
All correspondence, including application materials, should be sent to:
Julie Jonkhans
Training & Research Manager, BioCanRx
jjonkhans@biocanrx.com

Evaluation Criteria

Applications will be reviewed by an Adjudication Committee with relevant subject-matter expertise.

The following criteria will guide the review process:

1. **Feasibility and Quality:**

    - Is the project scope realistic for the 14-week timeline?
    - Will the experience provide meaningful learning opportunities for the student?

2. **Student Strength and Potential:**

    - Based on academic background and the supervisor's letter of support, does the student demonstrate strong potential for success in cancer research?

3. **Mentorship and EDI Commitment:**

    - Does the supervisor demonstrate intentional and proactive practices to create a safe, inclusive, and equitable research environment?
    - Are EDI principles embedded in the mentorship approach?

4. **Program Fit and Development Impact:**

    - How well does the proposed experience align with the student's stated academic, professional, and personal goals?

Supervisor Eligibility

Supervisors play a critical role in ensuring the success of the studentship experience.

Eligibility Requirements:

- Supervisors must hold a faculty or research appointment at a recognized Canadian post-secondary institution.
- Supervisors must be part of the ABI program network
- Supervisors may host undergraduate students from institutions other than their own.

Supervisors must describe in their letter:

- How they will support the student's academic and professional growth;
- Concrete actions they take to promote equity, diversity, and inclusion (e.g., mentoring practices, lab culture, accessibility);
- How the research environment will provide a safe and respectful learning experience for the student.

Note to Students:
Students must identify and confirm a supervisor prior to submitting the application. Those seeking support in identifying supervisors may contact:
Julie Jonkhans
Training and Research Manager, BioCanRx
jjonkhans@biocanrx.com

List of participating laboratories, Advanced Biomanufacturing Innovations: Biotherapeutics manufacturing stream

1. Dr. John Bell, Ottawa Hospital Research Institute, Ottawa, jbell@ohri.ca
2. Dr. Jean-Simon Diallo, Ottawa Hospital Research Institute, Ottawa, jsdiallo@ohri.ca
3. Dr. Amine Kamen, Viral Vectors and Vaccines Bioprocessing Group, Department of Bioengineering, McGill University, Montreal, amine.kamen@mcgill.ca
4. Dr. David Latulippe, Bioprocess Automation Lab, Chemical Engineering, McMaster University, Hamilton, latulid@mcmaster.ca
5. Dr. Jennifer Quizi, Biotherapeutics Manufacturing Centre, Ottawa Hospital, Ottawa, jquizi@ohri.ca
6. Dr. Trina Racine, Vaccine Development, Vaccine and Infectious Disease Organization, Saskatoon, trina.racine@usask.ca

Specific project descriptions:

Dr. John Bell

Title: "Optimizing and developing biotherapeutic purification processes and quality attribute assays in mRNA-lipid nanoparticle (LNP) manufacturing".

Description: Messenger RNA (mRNA) vaccines are promising biotherapeutics in the treatment of cancer and other diseases. To bring mRNA vaccines from the research setting into clinical trials, the mRNA must be pure and of high quality. The 2026 summer student fellowship will involve 1) the development and optimization of biotherapeutic purification steps, and 2) the development and optimization of molecular biology tests to ensure quality is accurately and precisely measured.

Dr. Jean-Simon Diallo

Title:" Enhancing Upstream Bioprocess Yields for Viral-Vectored Vaccines Using Small-Molecule Viral Sensitizers".

Description: This upstream bioprocess development project explores small-molecule viral sensitizers to increase the yields of viral-vectored vaccines (Ad, LV). The intern will test candidate molecules in producing cell lines and measure impacts on viral vector production. The work will inform improved upstream strategies for vaccine biomanufacturing.

Dr. Amine Kamen

Title: “Optimization of template DNA Cell-Free production for advanced mRNA manufacturing”

Description: Production of high-quality template DNA is major step in mRNA manufacturing. The Rolling Circle Amplification (RCA) is a cell-free method for producing template DNA within hours instead of days. This project focus on optimizing the RCA method through a Design of

Experiments. The intern will assist in assessing the critical process parameters (DNA polymerase, nucleotides, exonuclease primers, buffers) to maximize the yield of template DNA. The work will be an important contribution to advancing the manufacturing of mRNA vaccines and therapeutics by addressing current critical limitations in term of response-time, access, and cost-effectiveness.

Dr. David Latulippe
Title: "Innovations in Scalable Bioseparation Technology"
Description: This biomanufacturing project aims to develop next-generation analytical tools to monitor critical quality attributes in biotherapeutic production. The intern will perform protein analyses such as gel electrophoresis, mass spectrometry, liquid chromatography, and biolayer interferometry. This project will develop Canada's advanced biomanufacturing capabilities.

Dr. Jennifer Quizi
Title: "Process optimization for the manufacture of cutting edge biotherapeutics for cancer"
Description: The OHRI's Biotherapeutics Manufacturing Centre (BMC) is one of Canada's leading manufacturers of cell and virus-based therapies for use in early phase clinical trials. The 2026 summer studentship will join a team of 40+ highly qualified personnel and meaningfully contribute to the process development of a biologic therapy along its path to GMP production. This will involve being trained to work in a GMP environment, and hands-on training with specialized equipment such as bioreactors, tangential flow filtration and chromatography.

Dr. Trina Racine
Title: **"**Development of a GMP-Compliant Monolithic Chromatography Platform for Plasmid DNA and mRNA Purification"
Description: Specially designed DNA molecules, called plasmid DNA (pDNA) vectors, are an important starting material used to make messenger RNA (mRNA) for vaccines and other therapeutic products. To produce pDNA, bacteria are grown and then broken open to release the DNA. This mixture is then cleaned and purified to remove unwanted bacterial components and other impurities.
A newer type of purification, called monolithic chromatography, has recently been developed to purify both mRNA and the pDNA used to make it. These columns have large channels that allow liquids to flow through easily, enabling fast processing, high product recovery, and gentle handling of the DNA.
Creating a purification method that works at large scale and meets strict quality standards (GMP) is a key step toward producing mRNA efficiently and affordably—for both human and animal health. This work includes developing and validating a chromatography-based method that can separate different forms of pDNA using standard FPLC instruments commonly found in quality control laboratories. Having this "at-line" testing tool will speed up the development and scaling of the pDNA/mRNA production process and help ensure that the final pDNA/mRNA meets required quality standards.

The intern will assist in the following process:

1. **Fermentation and harvest of bacterial cells.**
2. **Optimization of conditions** to release DNA, proteins, and RNA from *E. coli* cells**.**
3. **Identification of methods to remove impurities**, such as RNA, from the lysed material before introducing crude DNA isoforms into the monolithic columns**.**
4. Identify and optimize the conditions to enhance the purity of the pDNA/mRNA molecules
5. **Development and optimization of UV-absorbance–based assays and electrophoretic methods** to ensure accurate and precise quality assessment of the products**.**