BioCanRx
Canada's Immunotherapy Network
Le réseau canadien d'immunothérapie

Enabling Studies Program

Accelerating the Clinical Translation of a Virally Programmed Exosome-Based Cancer Vaccine

Duration: 11/1/2024 to 9/30/2026

Researchers are advancing a therapeutic that attacks cancer by combining oncolytic viruses with immune system activation through exosomes. This platform approach addresses the challenge posed by cancer cells' ability to continuously evolve under the pressures of the immune system and their complex tumor environment.

1
BioCanRx Funded Core Facility

The Ottawa Hospital's Biotherapeutics Manufacturing Centre

Project value:

$1,735,193

BioCanRx Contribution:
$749,901

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Partners

Canadian Cancer Society | Société canadienne du cancer

CIHR IRSC Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

CAPITAL BIOVENTURES

ESPHERA SynBio

Key Investigators:

Project Lead:
Dr. Carolina Ilkow

Dr. John Bell

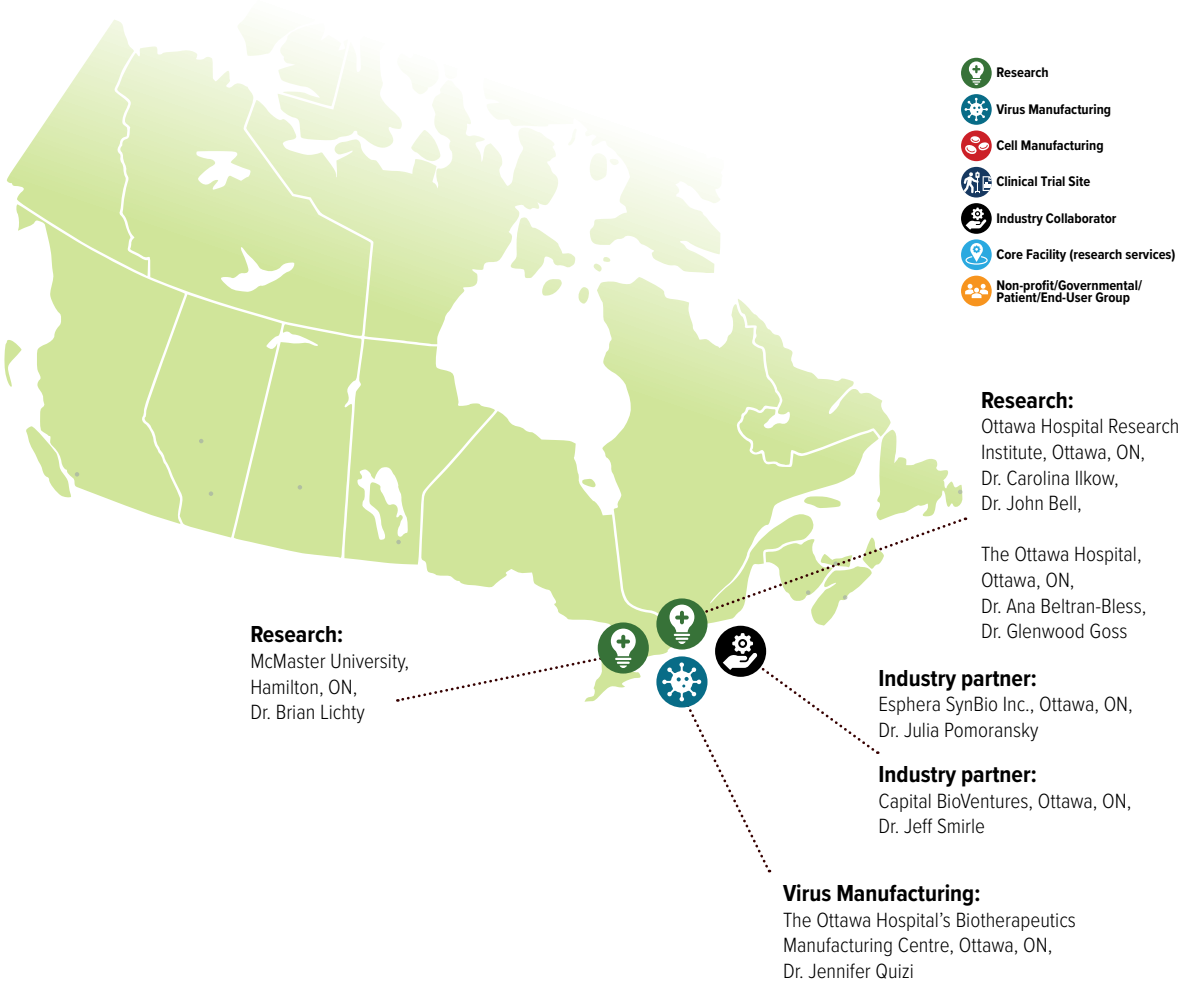
Dr. Jennifer Quizi

The Ottawa Hospital Research Institute | L'Hôpital d'Ottawa Institut de recherche

About the project:

Cancer cells continuously evolve under the pressures of the immune system and their complex tumour environment, leading to significant heterogeneity. This constant adaptation allows cancer cells to evade the immune system, making them difficult to eliminate with a single therapeutic agent. To address this "chameleon-like" behavior, novel multi-modal therapies are necessary. The team believes the best approach to combating cancer lies in developing therapies that both attack the tumour in multiple ways and harness the patient's immune system to eradicate the disease. Their research team is currently focused on creating multi-modal biological immunotherapies, combining cancer-killing viruses with small cargo carriers called exosomes. In this project, they aim to advance this cancer therapeutic towards clinical application by testing the immunotherapy on human tumour samples and assessing any potential toxicities. They will also develop the manufacturing pipeline and product release testing for a cancer-killing virus that programs exosomes with specific instructions to enhance the immune response against the tumour. By the end of this project, the team expects to have a product ready for clinical trials. They anticipate that combining virus-based immunotherapy with exosomes will result in an effective two-pronged attack, offering a novel and potent therapeutic approach for patients with aggressive cancers, who currently have limited options for long-term survival.

The impact of this project extends beyond its innovative therapeutic approach. By developing a scalable manufacturing pipeline and robust product release testing, this project aims to pave the way for clinical trials and eventual clinical application. This project promises to advance cancer therapy significantly, offering a novel approach that combines direct tumour destruction with immune system activation, potentially transforming the treatment landscape for immunologically "cold" cancers.



Partners:

Canadian Cancer Society

CIHR

Capital BioVentures

Esphera SynBio

Total Pledged Partner Contribution: $985,292

Total Pledged Matched Contributions: $820,000

Total Leveraged Partner Contributions: $165,292

Key Deliverables

1. Demonstration of cancer cell killing and immune activation
2. Comprehensive biodistribution analysis data package
3. Development of a GMP manufacturing process

The power to kill cancer lies within us. Let's tell our bodies how.

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