

## Oncolytic Rhabdovirus Immunotherapy for Brain Cancer

April 23rd, 2018 to September 30th, 2019

### Highlights

- Glioblastoma multiforme (GBM) is a common primary brain cancer with a grim prognosis, with an average 5-year survival rate of 4% in Canada
- Oncolytic virus immunotherapy (OVIT) is an emerging field that fuses the immune-stimulating properties of a replicating virus with the ability to vaccinate patients against their own tumour
- A new oncolytic virus vaccine was generated that targets brain tumor antigens derived from human cytomegalovirus (HCMV)
- This revolutionary therapeutic advancement serves to improve the outcome of patients with brain cancer in Canada

targeted cancers

### Glioblastoma multiforme (GBM)

The overall goal of this study is to discover, engineer, validate, and clinically test an oncolytic vaccine therapeutic to treat patients with Glioblastoma multiforme (GBM).

Project value

**\$951,415**

BioCanRX contribution:

**\$200,000**

Partners

**2**



Biotherapeutics

**1**

**Oncolytic Virus (Farmington virus (FMT))**

BioCanRx core facilities

**3**

**Human Immune Testing Suite (HITS)**

**Molecular and Cellular Immunology Core (MCIC)**

**Biotherapeutics Manufacturing Centre (BMC)**

### About the project

Patients with glioblastoma multiforme (GBM), the most common primary brain cancer, currently face a grim prognosis, and an average survival time of just 15 months. There have been no significant therapeutic advancements for GBM patients in over 35 years. Oncolytic virus immunotherapy (OVIT) is an exciting and emerging field that fuses the immune-stimulating properties of a replicating virus with the ability to vaccinate patients against their own tumour. In our lab, we have built a new oncolytic virus vaccine that targets brain tumour antigens derived from human cytomegalovirus (HCMV). These antigens are expressed by most GBM tumours, and act as biological tags that trigger immune system activation. Our vaccine platform has three unique and key immune-mobilising properties. Firstly, the virus travels to the spleen to activate the immune system against HCMV targets. Secondly, the oncolytic activity of the virus at the tumour site releases new antigens that can activate

immune cells against emerging brain cancer targets.

Thirdly, the virus travels to the brain to act as a beacon that draws in activated immune cells. Ultimately, both the virus and the immune system are primed to kill cancer cells. With support from BioCanRx, the Canadian Cancer Society and Brain Canada, we have shown that our oncolytic virus vaccine can boost CMV-specific immune cells against tumour targets, and can cure mice with GBM.

This revolutionary therapeutic advance is uniquely positioned to improve the outlook of patients with brain cancer in Canada who are in desperate need of better treatments.

Key investigators

Project lead:

Dr. David **Stojdl**

Co-Principal Investigator:

Dr. John **Bell**

Dr. Brad **Nelson**

Dr. Jonathan **Bramson**

Dr. Andrea **McCart**

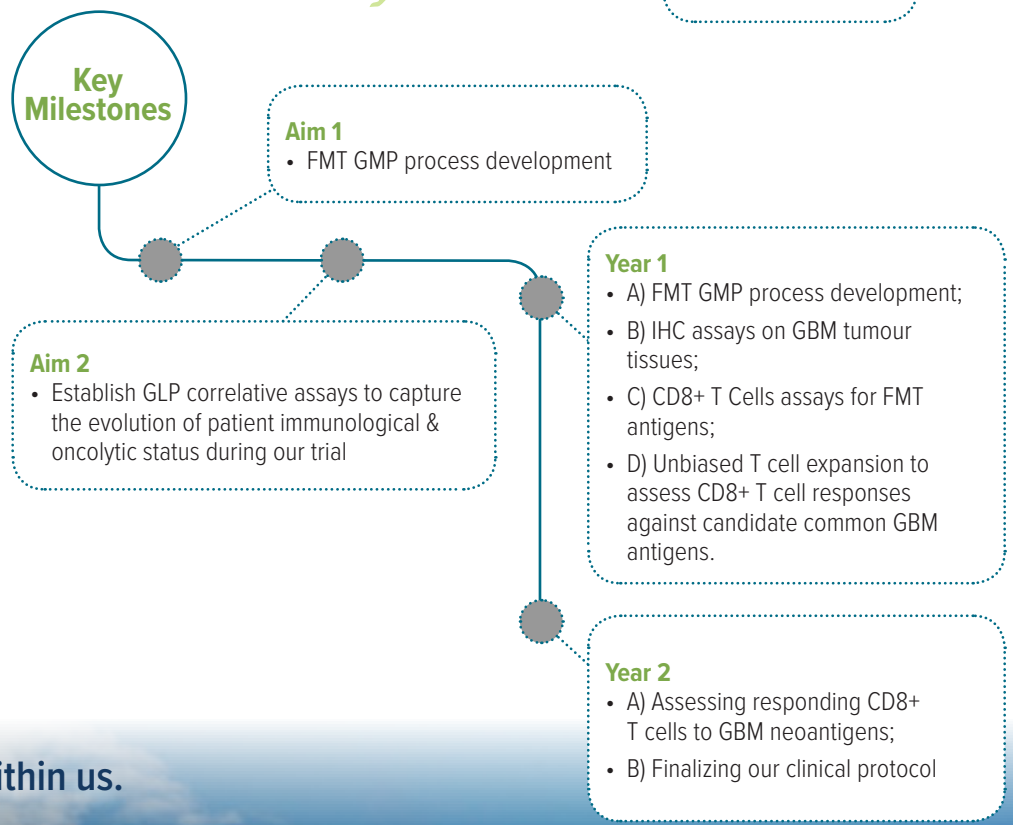
# Enabling Study Investigators



**Partners**

Alliance for Cancer Gene Therapy  
\$500,000 (Cash)

CHEO Foundation  
\$251,415 (Cash)



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

