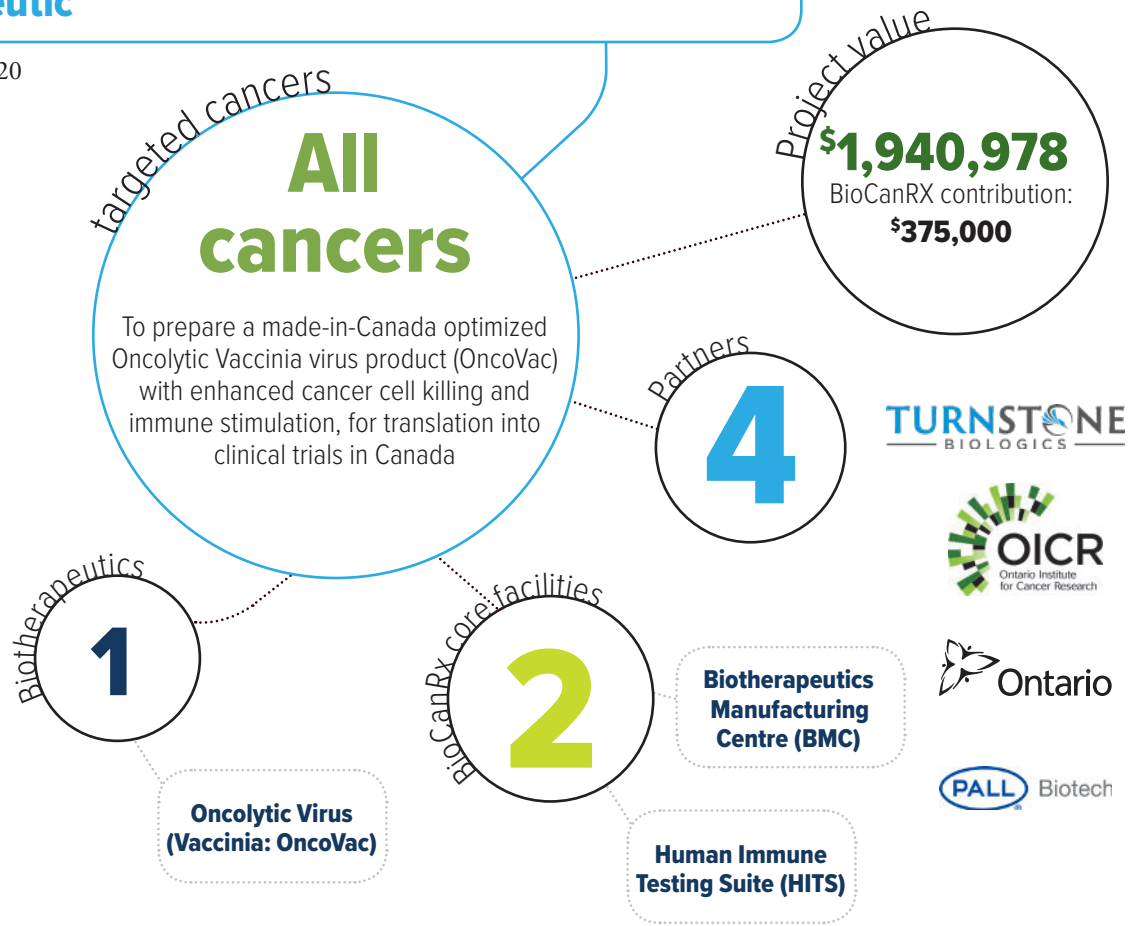


## Development of a Novel, Phase 1-Ready, Viro-Immunotherapeutic

April 23rd, 2018 to March 31st, 2020

### Highlights

- “OncoVac” has the ability to safely target and kill different tumor cell types, while successfully activating the immune system against tumor tissues
- OncoVac can be produced using HeLa cells however, it has not been validated that HeLa cells are the best cell line for generating large titres
- The iCELLis bioreactor system works efficiently and produces higher per cell yields of virus than the traditional rollerbottle system
- World's first use of iCELLis500 to GMP manufacture an oncolytic virus in Canada, building new capacity for vector manufacturing to our Network Core Facilities



## About the project

Cancer remains the leading causes of mortality worldwide. While treatments are available, existing chemotherapies and radiation therapy have limited success due to secondary effects on healthy cells, resulting in adverse side effects in patients. However, in the past 5 years, we have witnessed the development of new and promising cancer therapeutics that stimulate and awaken the body's immune system to attack tumor cells. These new biologically-based therapies, known as immunotherapeutics, have already begun to show great promise in a number of clinical trials. Among immunotherapeutics, Oncolytic Viruses (OV), also known as cancer killing viruses, are at the forefront. OVs are engineered viruses that are specifically designed to recognize and kill tumor tissues, while leaving normal tissues intact. The benefit of OV therapy is two-fold: not only are OVs capable of targeted killing of cancer cells, but they have the ability to induce a robust anti-tumor immune response

by the host, which combined, leads to efficient tumor control and eradication. However, there exists notable limitations to OVs specifically, the ability of most OVs currently in clinical testing to fully stimulate the immune system. In the lab, we discovered a new viral platform named “OncoVac” that has the ability to safely target and kill a number of different tumor cells types, while successfully activating the immune system against tumor tissues. In order to test this innovation in the clinic, it is critical that we invest in the process development required to generate a novel and viable manufacturing process for this platform.

**Key investigators**

**Project lead:**

Dr. John **Bell**

**Co-Principal Investigator:**

Dr. Jean-Simon **Diallo**



# Enabling Study Investigators



## Partners

Turnstone Biologics  
\$750,000 (Cash)

Ontario Research  
Fund- Research Excellence  
(ORF-RE)  
\$702,978 (Cash)

Ontario Institute for Cancer  
Research  
\$92,000 (Cash)

Pall Biotech  
\$21,000 (In-Kind)

## Key Milestones

### Deliverable 1: Q4, 2018

- OncoVac Process Development in the iCELLis

### Deliverable 2: Q1, 2019

- Toxicity and Bio-distribution Studies

### Deliverable 3: Q4, 2019

- OncoVac Master Virus Bank and Bulk Drug Substance Manufacturing in the iCELLis500

### Aim 1

- Development of a Manufacturing Process and Completion of a Master
- Virus Bank and Manufacture of the Bulk Drug Substance

### Aim 2

- Creation of a Toxicity Package for Regulatory Filings

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

