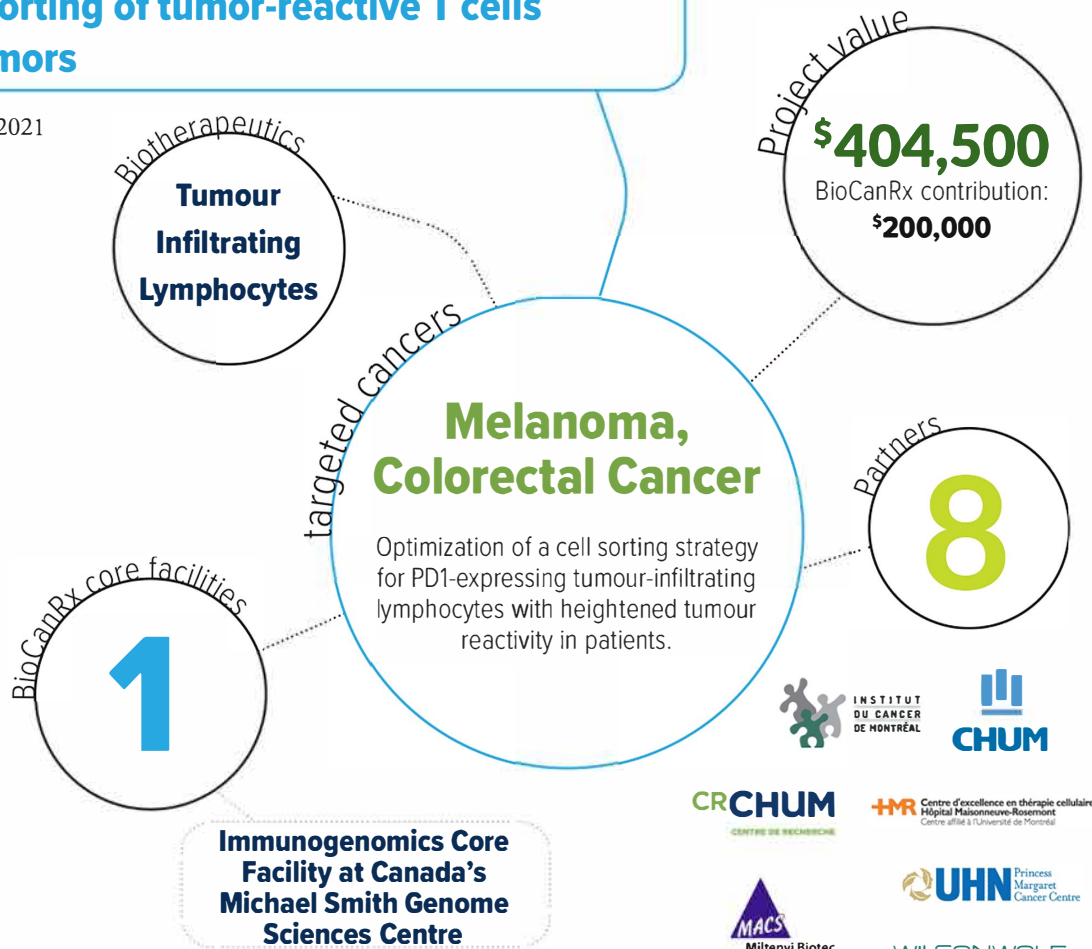


**Improving adoptive cell transfer immunotherapy with clinical-grade cell sorting of tumor-reactive T cells infiltrating solid tumors**

April 23rd, 2018 to March 31st, 2021

**Highlights**

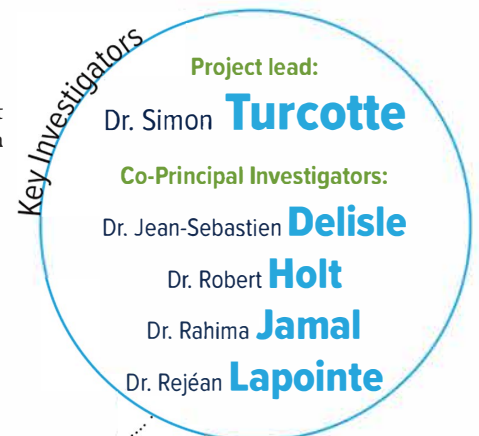
- This project will generate scientific evidence showing the superior features of the tumor-reactive T cell product in comparison to one obtained with conventional tumor-infiltrating T cell manufacturing
- The results of the proposed study will be utilized by other BioCanRx network investigators planning to use cell sorting to improve the efficacy of other types of adoptive cell transfer immunotherapy



**About the project**

Cancer immunotherapy, which uses the immune system to destroy cancer cells, is a real medical breakthrough. However, current strategies mainly rely on causing a general immune boost, which benefits only a minority of patients with tumors well recognized by the immune system. A small number of anti-tumor immune cells, called T cells, can naturally infiltrate tumors in most patients. One powerful approach to cancer immunotherapy is to make a cell transfusion product out of tumor-infiltrating T cells produced in large numbers outside the body. We propose to enhance this approach, called adoptive cell transfer immunotherapy, by making a cell transfusion product highly enriched in tumor-reactive T cells. This will be achieved by selecting tumor-infiltrating T cells expressing a marker called PD-1, that acts as a "tag" for tumor-reactive T cells. To do that, we have access to a sophisticated new device called

a cell sorter, currently unique in Canada. The main goal of this project is to get the approval from Health Canada to use the tumor-reactive T cell product in a clinical trial within two years. We will also generate scientific evidence showing the superior features of this cell product in comparison to one obtained with conventional tumor-infiltrating T cell manufacturing. The knowledge generated throughout the project will serve other BioCanRx network investigators planning to use cell sorting to improve the efficacy of other types of adoptive cell transfer immunotherapy.



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## Partners

Institut du Cancer de  
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 \$129,000 (In-Kind)

Centre hospitalier de l'Université  
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 \$18,732 (In-Kind)

Centre de recherche du l'Université  
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 Axis Immune Monitoring Platformà  
 \$600 (In-Kind)

CHUM Leukapheresis Unit  
 \$3,500 (In-Kind)

Centre d'excellence en  
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 \$29,974 (In-Kind)

Miltenyi Biotec à  
 \$13,694 (In-Kind)

Wilson Wolf Corporation  
 \$4,000 (In-Kind)

Adaptive Biotechnologies  
 \$5,000 (In-Kind)

## Key Milestones

### Aim 1

- To validate that PD-1+ sorted TILs are enriched in functional neoAg reactive T cells.

### Aim 2

- To establish manufacturing process of PD-1+-sorted TIL products and submit a clinical trial application (CTA).

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

