

Validation and manufacturing of anti-BCMA-TACT cells for the treatment of Multiple Myeloma

Oct. 14, 2016 to Mar. 31, 2018

Highlights

- TAC receptors are a novel Canadian technology with the potential to impact myeloma patient care worldwide and consolidate cell therapy manufacturing expertise in the country for other indications that involve gene modified T cell products
- Seeks to combine the novel technologies to yield a powerful, new treatment for multiple myeloma a clinical unmet need

targeted cancers

Multiple myeloma

Manufacturing process development studies to prepare BCMA-specific TACT cells for MM, and support for the pre-clinical assessments to prepare a pre-CTA package.

Project value

\$419,918
 BioCanRX contribution:
\$200,000

Partners

3

Biotherapeutics

Engineered T cells to prepare TACT cells + BCMA TAC lentivirus



About the project

Multiple myeloma is recognized as an incurable illness despite significant improvements in the last 15 years. Mounting evidence suggests that immune mechanisms can cure this disease as well as many other blood cancers. Therapies based on immune cells that are modified in the laboratory and injected back into the patient have been found to be highly effective in the treatment of leukemia. Recent results have indicated that such modified immune cells may be useful for treating multiple myeloma.

The Bramson laboratory has developed a novel technology for producing immune cells that will attack multiple myeloma cells. The technology is a chimeric receptor, known as a TAC receptor that displays a distinct biology from the conventional chimeric antigen receptors (CARs) cells. The Delisle laboratory is developing novel methods to manufacture human immune cells known as T cells that can specifically target cancer cells and persist for a long time in the patient, thereby providing sustained anti-cancer effects. The manufacturing innovations tested in this project will be of value to T cell therapies. Successful completion of this project will increase the value of the Canadian-made TAC technology.

This project will combine the laboratories' efforts to produce a powerful immune cell therapy for the treatment of multiple myeloma. At the end of the project period, the laboratories and clinical collaborators will be positioned with a clinical-grade manufacturing protocol that will support the development of a first-in-human clinical trial of this exciting new therapy.

Key investigators

Dr. Jean-Sébastien **Delisle**
 Dr. Jonathan **Bramson**



Catalyst Program Investigators



Hamilton
Juravinski Hospital,
McMaster University
Dr. Jonathan Bramson
Dr. Ronan Foley

Montréal
Hôpital Maisonneuve-Rosemont (HMR),
Université de Montréal
Dr. Jean-Sébastien Delisle
Dr. Richard LeBlanc

Partners

Miltenyi Biotec
\$50,000
(in-kind)

HMR-CEM TL (CETC)
\$40,000 (in-kind)

Triumvira Immunologics
\$129,918 (cash)

Key Milestones

Deliverable 1

Oct. – Dec. 2016: Amendments to existing protocols
Oct. 2016 – June 2017: Test culture conditions for TACT cells
Jan. – Dec. 2017: Generate and characterize TACT-cells prepared on Prodigy and generate and characterize virus-specific TACT-cell lines

Deliverable 2

Oct. 2016 – Dec. 2017: Lentivirus Manufacturing
Jan. 2017 – Dec. 2017: In vivo testing of TACT cells prepared at HMR

Deliverable 3

Jan. – Mar. 2018: Data compilation/completion (cell culture), data compilation/completion (in vivo testing), and pre-CTA package preparation

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