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

Enabling Studies Program

Enabling Studies for a First-in-Human Clinical Trial of BCMA-directed TAC-T Cells

Duration: 11/1/2024 to 4/1/2026

Targeted Cancer:

Multiple myeloma

Researchers are developing BCMA-directed TAC-T cells for the treatment of multiple myeloma. This therapeutic promises to be better tolerated by patients, reducing the cost and toxicity of cell therapy and potentially lengthening remission.

1 BioCanRx Funded Core Facility

The Ottawa Hospital's Biotherapeutics Manufacturing Centre

Project value:

$2,894,729

BioCanRx Contribution:

$766,997

Biotherapeutic:

Adoptive Cell Therapy

Key Investigators:

Project Lead:

Dr. Jennifer Quizi

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

Dr. Jean-Sébastien Delisle

HMR Centre de recherche – Centre affilié à l'Université de Montréal

Dr. Jonathan Bramson

McMaster University

11 Partners

Center for Commercialisation of Cancer Immunotherapy

Centre d'excellence en thérapie cellulaire Hôpital Maisonneuve-Rosemont – Centre affilié à l'Université de Montréal

Kingston Health Sciences Centre

Queen's University

Lonza

SAMUEL 1855

Canadian Cancer Trials Group | Groupe canadien des essais sur le cancer

Myélome Canada | Myeloma Canada

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

Juravinski Hospital and Cancer Centre – Hamilton Health Sciences

Leukemia & Lymphoma Society of Canada | Société de leucémie & lymphome du Canada

triumvira

About the project:

A promising new treatment strategy has emerged where white blood cells are removed from patients with multiple myeloma and modified in the laboratory to augment the white blood cells' ability to attack myeloma tumors. The modified white blood cells are administered back to the patient where they can mediate destruction of the myeloma leading to long-term remission of the disease and reduced treatment frequency. Two such white blood cell therapies are approved by Health Canada (ide-cel, cilta-cel). Enthusiasm for the approved cell therapies has been tempered by severe toxicities, high cost of treatment and a variable duration of remission. This research team has developed a novel form of the modified white blood cells, called T cell antigen coupler (TAC) receptor-engineered T cell (TAC T cell), which promises to be better tolerated by the patient. The team hypothesizes that the TAC T cells will offer patients a therapeutic option with reduced toxicity and provide an option for patients who cannot receive the approved white blood cell therapies. To test this hypothesis, the team has developed the "TACtful" early-phase clinical trial which will be led by the Canadian Cancer Trials Group, and will involve clinics in Montreal, Ottawa, Hamilton and Calgary. With the BioCanRx funding, they will produce the clinical-grade reagents that are required to modify the white blood cells, develop a protocol for producing the clinical-grade modified white blood cells and prepare the documentation for approval to test this novel therapy in humans. These critical steps must be completed to deliver this promising new treatment to myeloma patients in Canada.

- Research
- Virus Manufacturing
- Cell Manufacturing
- Clinical Trial Site
- Industry Collaborator
- Core Facility (research services)
- Non-profit/Governmental/ Patient/End-User Group

Virus Manufacturing:
The Ottawa Hospital's Biotherapeutics Manufacturing Centre, Ottawa, ON, Dr. Jennifer Quizi, Dr. Piriya Yoganathan,

Cell Manufacturing:
C3i/CETC, Dr. Jean-Sébastien Delisle, Montreal, QC

Research:
Queen's University, Kingston, ON, Dr. Laura Pearce, Dr. Annette Hay, Dr. Graeme Quest

Research:
Hôpital Maisonneuve-Rosemont, Montréal, QC, Dr. Richard LeBlanc

Research:
McMaster, Hamilton, ON, Dr. Jonathan Bramson, Dr. Joanne Hammill,

Industry Collaborator:
Triumvira, Hamilton, ON

Partners:

C3i/CETC

Canadian Cancer Trials Group

Juravinski Research Institute

Kingston Health Sciences Centre

Lonza

Myeloma Canada/ Leukemia and Lymphoma Society

Queen's University

Samuel Family Foundation

The Ottawa Hospital's Biotherapeutics Manufacturing Centre

Triumvira Immunologics

Total Pledged Partner Contribution: $1,278,810

Total Pledged Matched Controbutions: $1,278,810

Key Deliverable

1. GMP BCMA TAC Lentivirus manufacture
2. Developed GMP protocol for manufacturing autologous BCMA TAC-T cell products
3. Safety and pharmacokinetic data sets for BCMA TAC-T cell products manufactured
4. CTA Submission (including CMC documents and Investigator Brochure): The ultimate deliverable will be the successful filing of the TACtful CTA to Health Canada

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

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