

Discovery Profile



MitoCanada partners with MITO2i

to fund mitochondrial research that could introduce new therapies for breast cancer

Robert Screatton, PhD | Senior Scientist at Sunnybrook Research Institute

Breast cancer is the number one cancer killer of women.

Improving survival and quality of life for patients with breast cancer is essential. We are however, limited by our ability to offer personalized therapies that reduce the risk of treatment-resistance and disease recurrence while minimizing the risks of toxicity associated with ineffective chemotherapeutic agents.

Therapy for patients with locally advanced breast cancer typically involves treatment with chemotherapy prior to surgery. Selecting the appropriate therapy often involves significant trial-and-error. Most patients receive a standard cocktail of drugs, but only about one-third have a positive and complete response. This highlights the need for personalized treatment.

Dr. Screatton and his team propose to identify genes in the mitochondria of cancer cells that may contribute to their growth, survival and ability to develop resistance to chemotherapy.

It is known that cancer cells can use nutrients differently than normal cells. This raises the possibility of new strategies to kill them. These are called 'mitochondrial metabolism vulnerabilities'.

This novel approach will be able to silence mitochondrial genes in locally advanced breast cancer cells taken directly from patients to identify tumour-specific vulnerabilities. These vulnerabilities can then be targeted alone, or in conjunction with lower doses of established therapies, to kill tumours more effectively and reduce side effects.

An exciting outcome of this work is the development of patient-specific therapies based on the patient's tumour's demonstrated drug sensitivities.

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Your donations allow us to support life-saving research and offer hope.



This research is a collaborative initiative funded jointly by MitoCanada and the Mitochondrial Innovation Initiative (MITO2i)