

New technology discovery holds promise for improved breast cancer treatment

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In a study published by *Nature Biotechnology* online on February 1, 2009, Mount Sinai Hospital researchers have unveiled a new technology tool that analyzes breast cancer tumours to determine a patient's best treatment options. The tool can predict with more than 80 per cent accuracy a patient's chance of recovering from breast cancer.

"Breast cancer is the most common cancer in Canadian women," said Dr. Jeff Wrana, Senior Investigator and the Mary Janigan Research Chair in Molecular Cancer Therapeutics at the Samuel Lunenfeld Research Institute of Mount Sinai Hospital, and an International Scholar of the Howard Hughes Medical Institute. "Our hope with this technology is to eventually provide individualized analysis to breast cancer patients and their oncologists so that they are better informed and empowered to select a treatment best suited to them."

The technology, called 'DyNeMo' analyzes networks of proteins in cancer cells. Analysis of more than 350 patients found that those who survive breast cancer have a different organization of the network of proteins within the tumour cells, compared with patients who succumbed to the illness. DyNeMo can be used to predict the outcome in a newly diagnosed breast cancer patient and then assist clinicians and patients in making informed decisions on treatment. The study was led by the Mount Sinai Hospital team and co-authored by researchers at the University of Toronto and London, England's The Institute for Cancer Research.

In the future, this tool may be used to analyze other types of cancer and could be used to predict an individual's response to particular drugs.

"This research brings us one step closer to delivering individualized medicine in which healthcare professionals will be able to provide more accurate and personalized diagnoses and treatments," said Dr. Jim Woodgett, Director of Research for the Samuel Lunenfeld Research Institute of Mount Sinai Hospital.

The research was funded by Genome Canada with funds from Ontario Genomics Institute, and the Canadian Breast Cancer Foundation (CBCF) - Ontario Region. The CBCF's Interim CEO Beth Easton said the Foundation, "is pleased to play a role, along with others, in supporting the basic science behind this exciting development for breast cancer patients."

To bring this technology to patients, Mount Sinai Hospital is working to partner with the biotechnology industry, and estimates that the tool will be available to healthcare providers within the next five years.

Source: Samuel Lunenfeld Research Institute

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