

Scientists discover how to improve immune response to cancer

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A team of scientists at The Campbell Family Institute for Breast Cancer Research (CFIBCR) at Princess Margaret Hospital and international collaborators have discovered how to trigger an improved immune response to cancer that could be included in new clinical trials that use a patient's own cells to destroy tumours.

The findings, published online today in [Nature Medicine](#) (DOI: 10.1038/nm.1953), demonstrate the tantalizing potential of [immunotherapy](#) in [cancer](#) treatment, says principal investigator Dr. Pamela Ohashi, co-director, CFIBCR.

In the lab study, the scientists combined interleukin-7 (IL-7) - a key component of the [immune system](#) - with a viral vaccine to improve the ability of the cells of the immune system to attack tumours. The result was clear: The combination boosted immunity to tumours.

"We are extremely excited because our research has revealed the unexpected ways IL-7 works to break down barriers that naturally block the immune response to tumours. This is important because current vaccine approaches for immune therapy induce a response in just 1% to 3% of patients," says Dr. Ohashi, a senior scientist in signaling biology who holds a Canada Research Chair in Autoimmunity and Tumour Immunity. She is also a Professor, University of Toronto, in the Department of Medical Biophysics and Immunology. "

Dr. Tak Mak, co-author and CFIBCR director, says: "The promise of

using the body's own defenses to fight cancer is enormous. The day is coming when immunotherapy may help spare cancer patients the toxic side effects of traditional therapies and greatly improve their quality of life while treating the disease. This is why we are planning to expand our immunotherapy research program at PMH." Dr. Mak is also a Professor, University of Toronto, in the Department of Medical Biophysics and Immunology.

This research was also financially supported by grants and fellowships from the Canadian Institute for Health Research, the Ontario Institute for Cancer Research, the Terry Fox Foundation, the National Cancer Institute of Canada, the Boninchi Foundation (Geneva) and the Irvington Institute with the Cancer Research Institute (New York).

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