

Harnessing the power of the immune system to fight cancer

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Teaching the body's own immune system to seek out and destroy cancerous tumours represents a promising way to fight a disease that kills more than 70,000 Canadians a year.

Ongoing research has shown that cells of the immune system, when properly trained, have the capacity to circulate throughout the body and attack cancerous tissue.

A team of researchers from across the country, led by McMaster University's Jonathan Bramson, will accelerate the work in this field through a new Cancer Immunotherapy Program being launched with \$3.5 million in funding from the Terry Fox Foundation through the National Cancer Institute of Canada.

"This immune system research has enormous potential and is one of the top cancer research projects in Canada," says Dr. Michael Wosnick, executive director of the NCIC. "We eagerly anticipate the results."

In addition to continuing the development of vaccines specifically for breast cancer, the research program will involve experiments to stimulate and enhance immune responses against tumors and the development of more sophisticated imaging technologies to observe the immune stimulating agents at work.

"The team we have assembled for this program represents the Canadian leaders in this field, and will be conducting a series of laboratory

experiments designed to enhance the activity of our experimental immune stimulating approaches," said Bramson, an associate professor in the Department of Pathology and Molecular Medicine and principal investigator on the project. "Harnessing the power of the immune system to fight cancer heralds the next era of cancer treatment."

Bramson explained that the new program will allow researchers to continue advancing methods by which immune activating cells from humans are modified in the laboratory and infused into patients where they will trigger other immune cells to seek out and destroy cancer.

"Tumours avoid immune attack by convincing the immune system that they are normal, like a wolf in sheep's clothing," said Bramson. "Our strategies are designed to teach the immune system how to spot the tell-tale signs of the wolf. In this way, the tumours will no longer be able to hide, but the healthy tissues will be left untouched."

Co-principal investigators for the project include two other McMaster researchers in the Department of Pathology and Molecular Medicine: Ronan Foley, as associate professor, and Yonghong Wan, an assistant professor.

The team also includes researchers from the Robarts Research Institute, Toronto's University Health Network and Sunnybrook Health Sciences Centre, McGill University, the University of Montreal, the University of British Columbia and the British Columbia Cancer Agency.

The research team was formed with the involvement of both basic scientists and clinical investigators, so that questions about the implementation of the experimental therapies can be examined along with the development of the science involved.

"By bringing these leaders together, we will be able to greatly augment

the pace of delivery of this exciting new therapy," said Bramson. "The net result will ultimately have a significant impact on cancer treatment in Canada and the world."

Source: McMaster University

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