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Dr. Jeffrey Weitz, Department of
Medicine at McMaster University

Asking the Right Questions Thrombosis researcher makes contribution to cancer treatment

By: Ashley McCarl

Reinforcing the basic science component of McMaster University's Michael DeGroot School of Medicine was the initial reason Dr. Jeffrey Weitz came to campus. Now, he's the Director of the Henderson Research Centre. And after more than 20 years at the Hamilton, Ontario university, Weitz still starts every research project with a question, just like it was his first.

Weitz's most recent questions have surrounded the impact of a common prescription blood thinner on tumor spread in cancer patients. The thrombosis researcher began his foray into cancer treatment research when Heparin was found to contain anti-cancer properties.

"Heparin has been studied for over 20 years," says Weitz. "To research its ability to work as a blood thinner, we had to abolish its anticoagulant properties, and when that happened, we discovered its potential as an anti-cancer treatment."

When cancerous tumors develop in the body, a process called metastasis can occur where pieces of the tumor detach and move through the bloodstream, eventually taking root in other locations in the body.

Weitz and his team found that injecting Heparin prevented tumor cells from metastasizing. However, the high doses of unmodified Heparin needed to block this process can cause bleeding. To overcome this problem, Weitz and his team have chemically modi-

fied Heparin using a method that eliminates its blood thinning, or anti-coagulation, properties, but retains its capacity to block tumor spread. Further studies are ongoing to determine whether this new Heparin derivative may be a potential treatment option for cancer patients.

Weitz has also found that Heparin is also able to block tumor blood vessel formation, a process known as angiogenesis. Cancerous tumors need to generate their own blood supply to survive, and Heparin stops this process, stunting further growth of the tumor. Working with a company in California, TRF Pharma, Weitz hopes to further evaluate his chemically modified Heparin and explore methods to maximize its potency.

Weitz's research is one in a long line of thrombosis research activities occurring at McMaster University. The Thrombosis Group includes a diverse set of professionals with varying areas of expertise. For example, a colleague of Weitz, Prof. Anthony Chan, Department of Pediatrics, recently developed a new blood test that quickly allows doctors to see if the patient is at risk of clotting. Working with Diagnostica Stago, this new test is being commercialized so that it may be used in the future to identify at-risk patients.

Funding for Dr. Weitz's projects comes from the Heart and Stroke Foundation of Canada; Canadian Institutes of Health Research; and the Ontario Research & Development Challenge Fund. Dr. Weitz holds the Canada Research Chair, (Tier 1) in Thrombosis and the Heart and Stroke Foundation of Ontario/J.F. Mustard Chair in Cardiovascular Research.

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