Existing medicines show promise for treating stomach and bowel cancer

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Dr Emma Stuart has discovered that existing medications could be used to treat certain types of bowel and stomach cancers.

(Medical Xpress)—Stomach and bowel cancer, two of the most common cancers worldwide, could be treated with a class of medicines that are currently used to treat a blood disorder, a Melbourne research team has discovered.

The finding, in preclinical models, that medicines called 'JAK inhibitors' reduce the growth of inflammation-associated stomach and bowel cancer provides the first evidence supporting their use in treating these cancers.

JAK inhibitors are currently used to treat the cancer-like condition myelofibrosis, and are being investigated in clinical trials for the treatment of conditions including leukaemia, lymphoma, lupus and rheumatoid arthritis.

Dr Emma Stuart, Dr Tracy Putoczki and Associate Professor Matthias Ernst from the Walter and Eliza Hall Institute made the discovery with colleagues while at the Melbourne-Parkville Branch of the Ludwig Institute for Cancer Research. Associate Professor Ernst is also currently a Ludwig Member. Their findings have been published in the journal *Molecular Cancer Therapeutics*.

Dr Stuart said the discovery stemmed from the research team's long interest in the links between inflammation and cancers of the digestive tract. "Recently we have begun to unravel the complex signaling that occurs in inflamed tissues, such as when a person has a stomach ulcer or suffers from inflammatory bowel disease, and how this drives cancer development," she said.

"By understanding the molecules that are involved in promoting the survival and growth of cancer cells, we have been able to identify which of these molecules can be targeted with potential anti-cancer treatments. In this case, we determined that proteins called JAKs are involved in cancer formation in the stomach and bowel. It was exciting to discover that when JAKs were blocked with existing medications (JAK inhibitors), bowel and stomach cancer growth in experimental models was slowed, and many of the cancer cells were killed," Dr Stuart said.

Associate Professor Ernst said the findings were significant as JAK inhibitors were already available and had shown success in clinical trials, particularly for treating cancer-like blood conditions.

"Our team's research has uncovered several proteins that could be valuable targets in treating cancers of the digestive tract," he said. "The reason this discovery is particularly exciting is clinical trials have already shown that JAK proteins can be safely and successfully inhibited in patients. We hope this will expedite bringing our research to possible clinical trials that may improve the outlook for people with stomach and bowel cancer," Associate Professor Ernst said.

More information: "Therapeutic Inhibition of Jak Activity Inhibits Progression of Gastrointestinal

Tumors in Mice." Emma Stuart, Michael Buchert, Tracy Putoczki, Stefan Thiem, Ryan Farid, Joachim Elzer, Dennis Huszar, Paul M. Waring, Toby J. Phesse, and Matthias Ernst. *Mol Cancer Ther* Published OnlineFirst January 7, 2014; DOI: 10.1158/1535-7163.MCT-13-0583-T

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