New potential treatment opportunities for leukemia patients

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Professor Fabienne Mackay researches the effect of cancer on the immune system in her lab at Monash University.

(Medical Xpress)—The long-term survival of people suffering from chronic lymphocytic leukemia (CLL) could be increased with the development of new therapeutic strategies.

Ground-breaking research by Monash University Professor Fabienne Mackay from the Department of Immunology and PhD student Damien Easton-Saulep has been released today in the prestigious journal *Leukemia* that uncovers never before reported aspects of CLL.

Becoming increasingly more prevalent, CLL is the most common leukemia in the developed world and has no cure.

Funded by the Association for International Cancer Research (AICR) and National Health and Medical Research Centre (NHMRC), Professor Mackay's research found that key cells called "plasmacytoid dendritic cells", which are important for fighting infections and stimulating other immune cells in the destruction of tumor and infected cells, are actually eliminated in people with aggressive CLL.

Professor Mackay said CLL patients with a milder form of CLL appeared to have more of these rare cells, suggesting some protective effect.

"These unprecedented findings reveal that these rare but critical cells can be restored at the experiment level, resulting in re-activated immune functions including the destruction of cancer cells," Professor Mackay said.

"These results provide supporting evidence that a similar approach might have therapeutic benefits in patients with CLL. In healthy people, the immune system usually helps detect and destroy cancer cells or infected cells as soon as they arise.

"In some people, cancer cells are able to disable the immune system and as a result these people are more vulnerable to severe infections and no longer capable of controlling the emergence of cancer cells."

Professor Mackay said these people were typically more vulnerable to infections because the immune system was disabled.

"It is hoped that these discoveries will be an important turning point for the development of new therapeutic strategies that reactivate the immune

system, and enhance the long-term survival of CLL patients particularly vulnerable to fatal complications with infections."

More information: "Cytokine-driven loss of plasmacytoid dendritic cell function in chronic lymphocytic leukemia." D Saulep-Easton, F B Vincent, M Le Page, A Wei, S B Ting, C M Croce, C Tam and F Mackay. *Leukemia* (18 March 2014). DOI: 10.1038/leu.2014.105

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