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Enzyme that accelerates blood cancer is found

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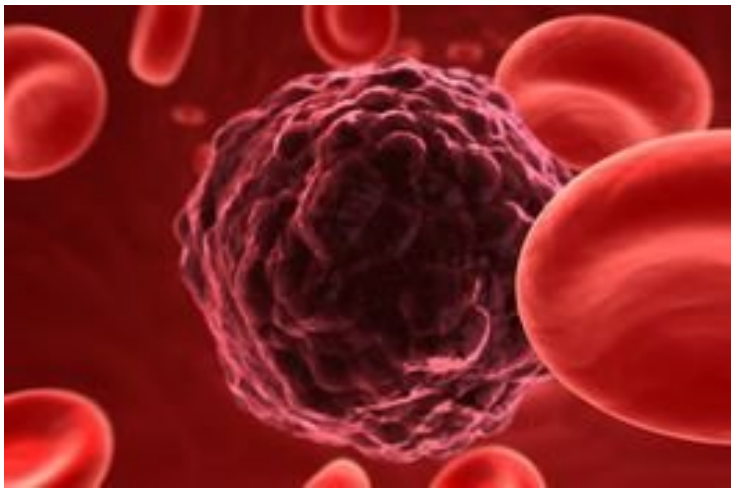

Singapore: An international team of researchers, comprising of principal investigator Dr Catriona H M Jamieson, associate professor of medicine, University of California, San Diego School of Medicine; with colleagues in the US, Canada and Italy, identified adenosine deaminase or ADAR1 as an enzyme responsible for promoting malignant stem cell cloning and the growth of chronic myeloid leukemia (CML).

CML is a blood and bone marrow cancer that is rising in prevalence. The research has been published in the December 24 online early edition of the Proceedings of the National Academy of Sciences (PNAS).

Despite the emergence of new therapies, such as tyrosine kinase inhibitors, CML and other leukemias remain problematic because some cancer stem cells avoid destruction and eventually regenerate themselves, a stem cell process known as self-renewal that can result in a return and spread (metastasis) of the disease. The study found that inflammation caused by the development of cancer boosts activity of an enzyme ADAR1.

Expressed during embryogenesis to help blood cell development, ADAR1 subsequently turns off and is triggered by viral infections where it protects normal hematopoietic stem cells from attack. In leukemia stem cells, however, over expression of ADAR1 enhances the mis-splicing of RNA, which leads to greater self-renewal and therapeutic resistance of malignant stem cells.

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