

Protein that takes care of our DNA is critical to leukaemia cell survival

April 5 2013



A protein – already known to be involved in a cell's response to stress – called Tetratricopeptide repeat domain 5 (TTC5) is critical to the development of acute myeloid leukaemia (AML), according to a new Cancer Research UK study published in *Cell Death and Disease*.

Scientists at Cancer Research UK's Paterson Institute at The University of Manchester found that reducing the amount of this TTC5 protein in AML cells causes them to die. This research gives a greater understanding of the proteins that cancers need to grow and could help in the development of more targeted drugs in the future.

Normal cells, once they have reproduced about 60 times, automatically

kill themselves by a cell death process called apoptosis. It is this mechanism that helps prevent cancer, as older cells that have built up more damage to their DNA are killed off.

[Cancer cells](#), however, are clever and they usually develop the ability to bypass this type of cell death, which means they can carry on dividing and growing.

Dr Tim Somervaille, lead researcher from Cancer Research UK's Paterson Institute at The University of Manchester, said: "In our new study we found that TTC5 represents one of a number of proteins that help keep [acute myeloid leukaemia](#) cells alive. This protein regulates a [cellular structure](#) called [chromatin](#), which controls whether genes are turned on or off. Studies like this will increase our understanding of the ways in which leukaemia cells evade death and cause disease."

Dr Julie Sharp, Cancer Research UK's senior [science information](#) manager, said: "Looking at pathways that are often faulty in leukaemia cells can reveal proteins that are helping to fuel the disease, which could help researchers develop new drug treatments. And it's exactly this type of vital research that these and other Manchester scientists will be doing at the new Manchester Cancer Research Centre – bringing together a wide range of expertise to revolutionise [cancer treatment](#)."

More information: Lynch et al. TTC5 is required to prevent apoptosis of acute myeloid leukemia stem cells, *Cell Death and Disease*, 2013. [doi:10.1038/cddis.2013.107](https://doi.org/10.1038/cddis.2013.107)

Provided by Cancer Research UK

Citation: Protein that takes care of our DNA is critical to leukaemia cell survival (2013, April 5)

retrieved 4 July 2023 from <https://medicalxpress.com/news/2013-04-protein-dna-critical-leukaemia-cell.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.