

Scientists announce new advance with potential for future cancer targeting

November 17 2010

New research that provides potential for exciting new approaches to targeting diseases such as cancer has been announced by an international team of academics.

They have also announced the potential for more targeted treatments following their identification of proteins that play a vital role in the life of a human cell.

The research teams from Germany and the UK have published their work in the Advance Online Publication on [Nature Cell Biology](#)'s website.

The teams are from the Centre for Molecular Biology at the University of Heidelberg and from the Department of Biochemistry at the University of Leicester. Their work was supported by the German Research Foundation (DFG), Wellcome Trust, Cancer Research UK and the Association for International Cancer Research.

Professor Elmar Schiebel, who led the study from the University of Heidelberg, said: "Our study describes novel and important insights into a key process involved in [cell division](#). This work suggests novel approaches to the targeted treatment of cancer. "

Professor Andrew Fry, who led the University of Leicester team, added: "This is an exciting new development that offers potential for finding new ways of inhibiting unregulated cell division which is a

characteristic of cancer and we are already working with colleagues in Newcastle and London to develop this research."

The scientists investigated the processes involved in cell division which led to their identification of a new potential breakthrough. Professor Fry explains: "When cells divide they must accurately separate their genetic material on a scaffolding structure called the [mitotic spindle](#). As cells divide in two, the mitotic spindle scaffold has two poles, or ends, to which the [genetic material](#), carried on chromosomes, must separate.

"The poles of the spindle are generated by a pair of structures called centrosomes, which are normally held in close proximity in cells, but which at the start of cell division move to opposite ends of the cell. Failure of centrosome separation blocks division of cells and can ultimately lead to cell death.

"Our research has identified new proteins that control centrosome separation as well as assessing the relative contributions of these together with previously described regulators. Importantly, this work suggests exciting new approaches to the targeted treatment of diseases characterized by deregulated cell division, such as cancer, as inhibitors of centrosome separation have the potential to prevent uncontrolled cell proliferation.

"Moreover, combining drugs against different regulators may reduce cytotoxic side-effects by allowing reduced concentrations of each inhibitor to be used in patients.

"In order to undertake proof of principle experiments, we are now in the process of developing inhibitors against these novel [centrosome](#) separation regulators in collaboration with the Institute of Cancer Research in London and the Northern Institute for [Cancer](#) Research at the University of Newcastle."

Provided by University of Leicester

Citation: Scientists announce new advance with potential for future cancer targeting (2010, November 17) retrieved 10 April 2024 from <https://phys.org/news/2010-11-scientists-advance-potential-future-cancer.html>

<p>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.</p>
--