



Discovery offers hope for new cancer treatments

Scientists have discovered why a group of cancer drugs are so effective in treating the disease. Although they have been used for many years to treat certain tumours, researchers didn't know how they worked until now. The findings, published in EMBO Reports* and presented by Cancer Research UK's chief scientist Professor Sir David Lane at the NCRI Cancer Conference in Birmingham today (Tuesday), pave the way for the development of a new range of cancer treatments. The study, carried out at the University of Dundee, examined a molecule called NEDD8, known to have an important role in turning on p53, the gene which inhibits a cell's growth. p53 is faulty (and sometimes missing) in more than half of cancers.

The team, led by AICR Research Fellow, Dr Dimitris Xirodimas, discovered that blocking the activity of NEDD8 played a crucial part in allowing cancer drugs such as Actinomycin D** to be able to switch on p53 - causing the death of the cancer cells.

NEDD8 works by attaching itself to other proteins - a process called NEDDylation - to alter their properties. The Dundee group found that NEDDylation stops certain proteins leaving a specialised area of the cell, impeding this allows the proteins to move and gives the signal for p53 to be activated, killing the cancer cells.

Dr Dimitris Xirodimas said: "We are excited about these findings. A pharmaceutical company has recently developed chemicals which block the

NEDDylation reaction and these compounds are currently being tested in clinical trials for the treatment of cancer. Our research reinforces the value of this work and opens up avenues for the development of new ways to treat cancer." The study was funded by AICR, the Association for International Cancer Research (AICR).

The charity's, Scientific Advisor, Dr Mark Matfield said: "The significance of this discovery is that it could lead to drugs that would be effective against a wide range of cancers. Over the last decade, many of the new cancer drugs have only been useful for a few, specific cancers. What we really need are effective broad range cancer therapies." Professor Sir David Lane, Cancer Research UK's chief scientist said: "p53 is missing or faulty in almost half of all cancers and there are 270,000 new cases of cancer in the UK each year so by understanding potential therapies can switch it on and off is an important part of the search for new potential therapies."

ENDS

**For media enquiries please contact Emma Rigby
on 020 7061 8318 or, out-of-hours, the duty
press officer on 07050 264 059**

You can find all the abstracts here: http://www.ncri.org.uk/ncriconference/programme/Prog_Glance.asp

*Regulation of nucleolar signalling to p53 through NEDDylation of L11. Anders Sundqvist et al. EMBO Reports.

Actinomycin D or Dactinomycin is used to treat **sarcomas, Wilm's tumour, germ cell cancers **testicular cancer**, **melanoma** and **choriocarcinoma**. Low doses of actinomycin D cause disruption of the nucleolus, which is a distinct compartment within the cell nucleus.

***Attachment of NEDD8 to the L11 ribosomal protein seems to keep L11 in the nucleolus. Actinomycin D removes NEDD8 from L11 and this allows L11 to come out of the nucleolus allowing it to activate p53.

About the NCRI Cancer Conference

The National Cancer Research Institute (NCRI) Cancer Conference is the UK's major forum for showcasing the best British and international cancer research. The Conference offers unique opportunities for networking and sharing knowledge by bringing together world leading experts from all cancer research disciplines. The fifth annual NCRI Cancer Conference is taking place from the 4-7 October 2009 at the International Convention Centre in Birmingham.

For more information visit www.ncri.org.uk/ncriconference

About the NCRI

The National Cancer Research Institute (NCRI) was established in April 2001. It is a UK-wide partnership between the government, charity and industry which promotes co-operation in cancer research among the 21 **member organisations** for the benefit of **patients**, the public and the scientific community.

For more information visit www.ncri.org.uk

NCRI members are: the Association of the British Pharmaceutical Industry (ABPI); Association for International Cancer Research; Biotechnology and Biological Sciences Research Council; Breakthrough Breast Cancer; Breast Cancer Campaign; Cancer Research UK; CHILDREN with LEUKAEMIA, Department of Health; Economic and Social Research Council; Leukaemia Research; Ludwig Institute for Cancer Research; Macmillan Cancer Support; Marie Curie Cancer Care; Medical Research Council; Northern Ireland Health and Social Care (Research & Development Office); Roy Castle Lung Cancer Foundation; Scottish Government Health Directorates (Chief Scientist Office); Tenovus; Welsh Assembly Government (Wales Office of Research and Development for Health & Social Care); The Wellcome Trust; and Yorkshire Cancer Research.

About AICR

AICR, the Association for International Cancer Research, is dedicated to the international fight against cancer by funding the research needed to save lives. We are the leading charity funding cancer research across the world. The organisation is based in

www.ncri.org.uk/ncriconference

NCRI Cancer Conference Press Office
61 Lincoln's Inn Fields, London, WC2A 3PX, UK

t: +44 (0)20 7061 8300 | +44 (0)7050 264 059 (out of hours) e: press@ncri.org.uk



St Andrews, Scotland, but has international reach. Currently AICR is funding 212 projects in 24 countries.

For more information visit www.aicr.org.uk

The University of Dundee

The University of Dundee is internationally recognised for

excellence in life sciences and medical research with particular expertise in cancer, diabetes and tropical diseases. The University has both a 5* rated medical school and College of Life Sciences, with research expanding from “the cell to the clinic to the community”.

See www.dundee.ac.uk for further details.

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