

Researchers use genetically modified cold virus to kill cancer cells

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Researchers at the University of Birmingham have developed a method of using a genetically modified cold virus to target and kill tumour cells. Rather than delivering a drug, the virus acts as a method of delivering proteins that cause cancer cells to die.

The technique targets a molecule called CD40, which normally plays a key role in activating the immune system. Research has shown that CD40 is present in many common tumours including breast, liver and skin cancers.

The results of laboratory studies of the technique at the University's CRUK Institute of Cancer Studies will be reported at the at the National Cancer Research Institute (NCRI) Conference in Birmingham today

The modified virus contains a protein CD40L that will bind to the CD40 on the surface of cancer cells. This binding process results in the death of the cancer cell.

Using a modified form of the cold virus to deliver the genetic material also seems to have a dual effect, both in killing cancer cells and in stimulating a natural immune response to tumours.

The body does not normally produce an immune response to cancer cells – although scientists believe that rare cases where tumours disappear without treatment may be the result of an immune reaction.

Dr Daniel Palmer explains: "This approach has a number of possible advantages over conventional therapies. Firstly, focusing on CD40, which is expressed on cancer cells allows any therapy to be targeted at tumours. Secondly it seems that targeting CD40 has a double benefit by both killing cells and activating the body's immune system. Clearly it would be very beneficial if we can activate the body's own immune system against the tumour. This would help reduce the toxic side effects associated with chemotherapy and possible tackle microscopic secondary tumours."

Recently the research team have enhanced the system by developing a modified version of the CD40L protein, which does not break up in contact with the cell wall. This enhances its toxicity to cancer cells. The research team are now looking at developing clinical trials for the technique possibly looking at its effect in liver and skin cancers.

Professor Lawrence Young adds: "We have shown that this technique can kill tumour cells in laboratory conditions. Now it is important to see whether this method could be effective in patients. The next stage will be to develop a clinical trial for the technique with probable targets being liver or skin tumours."

For further information or to request a copy of the abstract contact Ben Hill, Press Officer, University of Birmingham, Tel 0121 4145134, Mob 07789 921 163, email b.r.hill@bham.ac.uk

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Notes to Editors

About the NCRI Cancer Conference

The National Cancer Research Institute (NCRI) Cancer Conference is the UK's premier forum for disseminating advances across all aspects of cancer research.

AstraZeneca is the gold sponsor for the NCRI Cancer Conference 2007.

About the NCRI

The National Cancer Research Institute (NCRI) was established in April 2001. It is a partnership between government, the voluntary sector and the private sector, with the primary mission of maximising patient benefit that accrues from cancer research in the UK through coordination of effort and joint planning towards an integrated national strategy for cancer research. www.ncri.org.uk

The NCRI consists of: The Association of British Pharmaceutical Industry (ABPI); The Association for International Cancer Research; The Biotechnology and Biological Sciences Research Council; Breakthrough Breast Cancer; Breast Cancer Campaign; Cancer Research UK; Department of Health; Economic and Social Research Council; Leukaemia Research Fund; Ludwig Institute for Cancer Research; Macmillan Cancer Support; Marie Curie Cancer Care; The Medical Research Council; Northern Ireland Health and Personal Social Services Research & Development Office; Roy Castle Lung Cancer Foundation; Scottish Executive Health Department; Tenovus; Wales Office of Research and Development for Health & Social Care; Wellcome Trust; and Yorkshire Cancer Research.

The Institute for Cancer Studies

The Institute for Cancer Studies at the University of Birmingham is one of the Cancer Research UK's major research laboratories and the only one to be fully integrated into the academic structure of a University

Of the Institute's total research funding (currently around £10 million per year), some 52% comes from Cancer Research UK in the form of Programme or Project grants with the rest coming mainly from the Medical Research Council, the Leukaemia Research Fund and the Wellcome Trust. Institute has a staff of over 250 people with a diverse range of interests and expertise including basic cell biology, genetics, virology, immunology, bioinformatics, oncology, radiotherapy and statistics.

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