

## Researchers show first results from new Epstein Barr cancer vaccine

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Researchers from the University of Birmingham and the Royal Marsden Hospital are using a vaccination for a common virus as a way of stimulating the body's immune system to attack cancer cells.

This approach builds on many years of research supported by Cancer Research UK culminating in the current clinical trial.

The preliminary results of this trial of vaccination against Epstein Barr Virus (EBV) in patients will be presented at the National Cancer Research Institute (NCRI) Conference in Birmingham today (Tuesday).

The initial results from testing of samples from three patients with EBV positive tumours suggest the vaccine can encourage the body to produce an immune response to cancer cells that are infected with the virus.

Epstein-Barr is a herpes virus that is widespread in all human populations. Although normally the virus causes no health problems it is known to be associated with a number of cancers including lymphomas and naso-pharyngeal carcinoma. This means that cells in these tumours are infected with EBV.

The new vaccine targets two proteins (EBNA1 and LMP2) that are expressed in cancer cells infected with the virus. The vaccine created by the Birmingham team contains a gene made up of elements of EBNA1 and LMP2 which can be recognised by the human immune system. The aim is to boost and redirect an existing immune response to target the cancerous cells that are EBV infected.

If the body is able to produce an immune response to the proteins in the cancer cells it provides a natural mechanism of attacking the disease.

Dr Neil Steven from the University of Birmingham's Institute for Cancer Studies comments: "Scientists are increasingly looking at ways to use cancer vaccines to stimulate the body's immune system against tumours. EBV is an obvious target because it is present in a number of tumours. In the Far East and Africa, EBV positive tumours like naso-pharyngeal carcinoma and Burkitt's Lymphoma are very common. In the UK, we see the virus in cancers such as Hodgkin's disease and nasopharyngeal cancer less frequently. A successful vaccine could have world-wide application building on the benefits of chemotherapy and radiotherapy.

"The initial results of these vaccinations are promising. It seems that the vaccine is able to encourage the body's immune response to the proteins present in the tumour. The next stage is to assess how effective this process can be in attacking tumours."

Recruitment is continuing for a trial of the vaccine for patients with EBV positive tumours who have already received chemotherapy or where no alternative treatment exists. A similar study using the same vaccine is currently ongoing in Hong Kong

Patients receive the vaccination injected into the skin three times at three week intervals. The initial results on samples from three patients showed that injection with the vaccine did stimulate a limited immune response.

Dr Steven continues: "It is likely that in the future an EBV vaccination would be used in conjunction with chemotherapy for many of these tumours to possibly prevent the re-growth or spread of disease linked to the virus. Dr Kevin Harrington is treating patients on the trial at the Royal Marsden Hospital and I am doing so in University Hospital Birmingham. We are extremely keen to recruit more patients to the ongoing trial of the vaccine. These cancers are uncommon so completing the trial takes time. However, the effort is worthwhile because cancer vaccines do have tremendous potential for future clinical use."

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](mailto:b.r.hill@bham.ac.uk)

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### 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](http://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.