

PRESS RELEASE

Tuesday 3 November, 2015



SCIENTISTS DISCOVER HOW TO BETTER MAP BRAIN TUMOURS

SCIENTISTS have discovered a protein that helps map the edge of brain tumours more clearly so they show up on magnetic resonance imaging (MRI) scans, according to new research presented at the National Cancer Research Institute (NCRI) Cancer Conference in Liverpool* today (Tuesday).

The laboratory research, carried out in rats, could lead to clinical trials aimed at improving the accuracy of brain tumour treatment.

For the first time, scientists have identified a protein inside blood vessels found at the invasive edge of brain tumours – highlighting the area from where cancer is most likely to spread.

This protein is produced as part of an inflammatory response caused by the brain tumour. Mapping this inflammation gives scientists a more complete picture of the cancer.

The scientists have developed a special dye that recognises and sticks to the protein – VCAM-1 – on the brain blood vessels and this can be seen on MRI scans. Importantly, the protein is on the inside of the vessels, providing an accessible target from the bloodstream.

This new research gives scientists the most complete picture of brain tumours yet, and for the first time the edge of a growing tumour has been mapped. These cells are the most important to catch as they are the most likely to spread.

Clinical MRI techniques can show images of leaky blood vessels in patients, often a sign of brain tumours. Unfortunately, blood vessels near the edge of brain tumours are often intact, so the MRI fails to reveal the whole tumour.

Each year around 9,700 people in the UK are diagnosed with a tumour in their brain or in other parts of their central nervous system: that's 27 people every day.

Professor Nicola Sibson, study author and Cancer Research UK scientist at The University of Oxford, said: "If we can't map the edge of the tumour, surgery and radiotherapy often fail to remove aggressive tumour cells – and the brain tumour can grow back.

"This research shows that we can improve imaging of brain tumours, which could help both surgeons and radiotherapists with more effective treatment."

Professor Charlie Swanton, chair of the 2015 NCRI Cancer Conference, said: "Brain tumours are very difficult to treat and take the lives of too many patients each year. This important research identifying the edge of tumours – the area most likely to grow and spread - has potential to really help doctors treat patients and help save more lives."

Harpal Kumar, Cancer Research UK's chief executive, said: "Brain cancers continue to have very poor survival rates, which is why research into how to treat them is a top priority for Cancer Research UK. Being able to delineate the edges of brain tumours is an exciting step towards better surgery and radiotherapy for patients. The holy grail would be to be able to completely remove brain tumours with the help of this new imaging technique – reducing recurrence of the disease and saving more lives."

This study was funded by Cancer Research UK and the Medical Research Council.

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Notes to Editors:

* This research was presented by Dr Sebastien Serres. NCRI conference abstract: <http://abstracts.ncri.org.uk/abstract/detection-of-brain-tumours-using-translational-molecularly-targeted-magnetic-resonance-imaging-2/>

**Video: <https://youtu.be/36U0latUldE>

About the NCRI

The National Cancer Research Institute (NCRI) was established in 2001. It is a UK-wide partnership between cancer research funders which promotes collaboration in the field. Its member organisations work together to maximise the value and benefits of cancer research for patients and the public.

NCRI members are: Biotechnology and Biological Sciences Research Council; Bloodwise (formerly Leukaemia & Lymphoma Research); Breast Cancer Now; Cancer Research UK; Children with Cancer UK, Department of Health; Economic and Social Research Council; Macmillan Cancer Support; Marie Curie; Medical Research Council; Northern Ireland Health and Social Care Public Health Agency (Research & Development Department); Prostate Cancer UK; Roy Castle Lung Cancer Foundation; Scottish Government Health Directorates (Chief Scientist Office); Tenovus Cancer Care; The Wellcome Trust; Welsh Assembly Government (Health and Care Research Wales); and Worldwide Cancer Research (formerly AICR).

For more information visit www.ncri.org.uk

About the NCRI Cancer Conference

The 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 NCRI Cancer Conference is taking place from 1–4 November 2015 at the BT Convention Centre in Liverpool.
- For more information visit conference.ncri.org.uk

The **Medical Research Council** is at the forefront of scientific discovery to improve human health. Founded in 1913 to tackle tuberculosis, the MRC now invests taxpayers' money in some of the best medical research in the world across every area of health. Thirty-one MRC-funded researchers have won Nobel prizes in a wide range of disciplines, and MRC scientists have been behind such diverse discoveries as vitamins, the structure of DNA and the link between smoking and cancer, as well as achievements such as pioneering the use of randomised controlled trials, the invention of MRI scanning, and the development of a group of antibodies used in the making of some of the most successful drugs ever developed. Today, MRC-funded scientists tackle some of the greatest health problems facing humanity in the 21st century, from the rising tide of chronic diseases associated with ageing to the threats posed by rapidly mutating micro-organisms. www.mrc.ac.uk

About Cancer Research UK Cancer Research UK is the world's leading cancer charity dedicated to saving lives through research. Cancer Research UK's pioneering work into the prevention, diagnosis and treatment of cancer has helped save millions of lives. Cancer Research UK receives no government funding for its life-saving research. Every step it makes towards beating cancer relies on every pound donated. Cancer Research UK has been at the heart of the progress that has already seen survival in the UK double in the last forty years. Today, 2 in 4 people survive their cancer for at least 10 years. Cancer Research UK's ambition is to accelerate progress so that 3 in 4 people will survive their cancer for at least 10 years within the next 20 years. Cancer Research UK supports research into all aspects of cancer through the work of over 4,000 scientists, doctors and nurses. Together with its partners and supporters, Cancer Research UK's vision is to bring forward the day when all cancers are cured. For further information about Cancer Research UK's work or to find out how to support the charity, please call 0300 123 1022 or visit www.cancerresearchuk.org. Follow us on Twitter and Facebook.



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