

# Scientists discover how to better map brain tumors

November 3 2015

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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.

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."

**More information:** [abstracts.ncri.org.uk/abstract ... resonance-imaging-2/](https://abstracts.ncri.org.uk/abstract.../resonance-imaging-2/)

Provided by Cancer Research UK

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