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Genetic link to rare brain tumour discovered

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Cancer Research UK funded scientists have conducted the first whole-genome scan of the brain tumour meningioma and revealed a genetic region that increases the risk of developing the disease, according to research published in *Nature Genetics*.

Professor Richard Houlston from The Institute of Cancer Research led the major international collaboration comparing the DNA of 1,633 meningioma patients and 2,464 healthy controls, using a technique known as a genome-wide association study.

Relatives of people with meningiomas are three times more likely to develop the disease but little is known about what increases their risk. A small proportion of meningiomas are linked to four rare genetic diseases called neurofibromatiosis type-2, Coden, Werner and Gorlin symdromes.

Professor Houlston said: “We knew that people with certain rare inherited diseases are more likely to develop meningiomas. Although these inherited diseases significantly increase the chance of getting this type of brain cancer, they are so rare that they account for a very small proportion of the increased risk among relatives of people with meningiomas. Our study begins to shed light on the biggest part of the inherited risk.

“The genetic region we’ve found is very closely linked with two genes called AF10 and MLLT10, which we know are involved in the development of leukaemia. We can’t say at this stage whether the

diseases are linked or even if the two genetic regions interact, but we'll be looking at this in our follow up studies."

More than 4,500 people are diagnosed with malignant brain tumours in the UK each year. Meningiomas account for around a quarter of these, but little is known about the cause of the disease, which tends to mostly affect older people and women.

The tumours tend to grow slowly in the tissues of the brain or spinal cord and as a result do not respond well to chemotherapy and cannot always be safely removed by surgery.

Dr Julie Sharp, senior science information manager at Cancer Research UK, said: "Brain tumours are usually more difficult to treat because of the sensitive position of the tumour. As a result of this, survival rates have remained quite low.

"Studies like this are important in helping us understand more about the way brain tumours develop and this research has already given scientists another lead to follow to learn more about the disease."

More information: Common variation at 10p12.31 near MLLT10 influences meningioma. Dobbins et al. *Nature Genetics*. 31 July 2011. DOI 10.1038/ng.879

Provided by Cancer Research UK

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