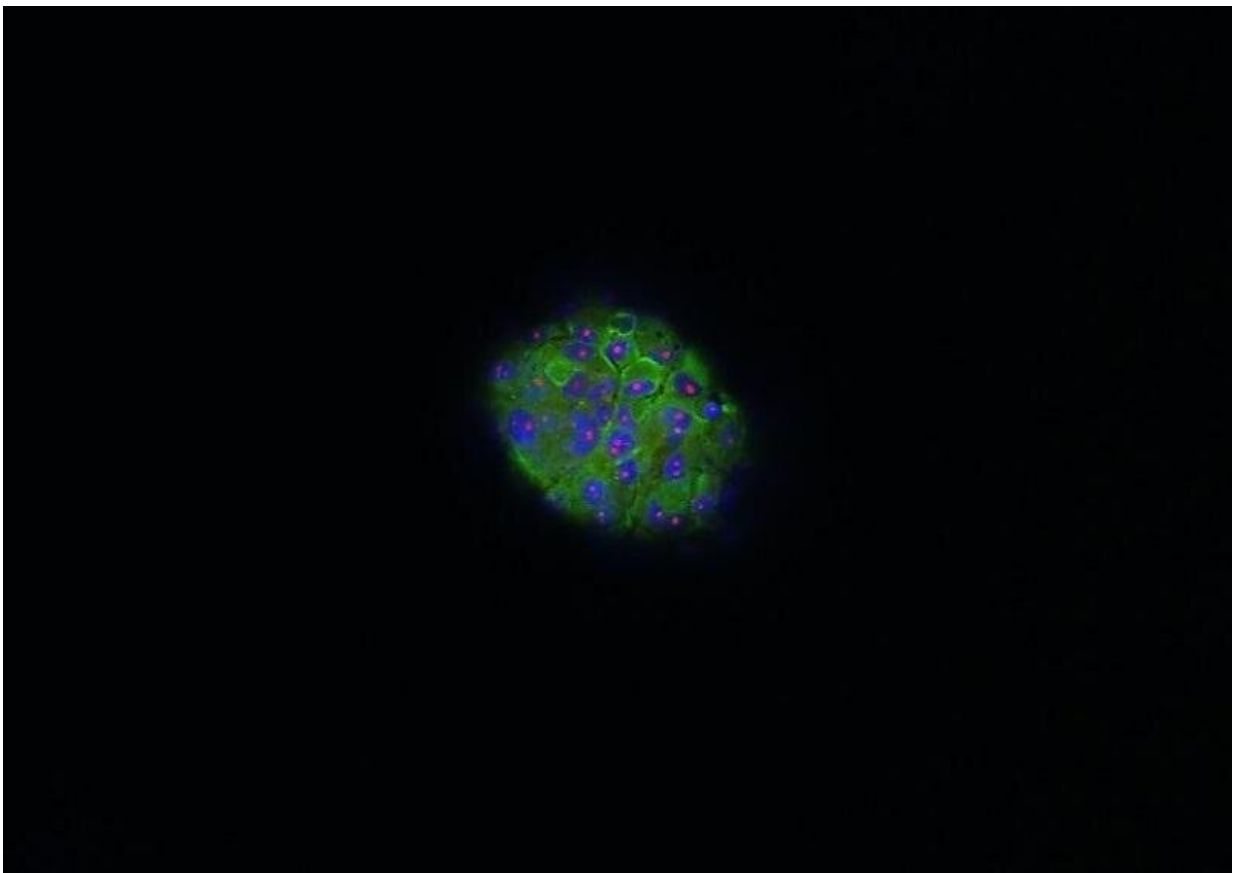


Research breakthrough could see simple blood test replace surgery for some brain tumour patients

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Fluorescent microscopic picture of 3D model meningioma. Credit: University of Plymouth

A research breakthrough shows that a simple blood test could reduce, or in some cases replace, the need for intrusive surgery when determining the best course of treatment for patients with a specific type of brain tumor.

Researchers at the Brain Tumor Research Center of Excellence at the University of Plymouth have discovered a biomarker which helps to distinguish whether meningioma—the most common form of adult primary [brain](#) tumor—is grade I or grade II.

The grading is significant because lower grade tumors can sometimes remain dormant for long periods, not requiring high risk surgery or harsh treatments such as radiotherapy and chemotherapy. Tumors classified as grade II can progress to become cancerous and more aggressive treatment may be needed in order to try to control their spread.

At the moment, meningioma patients are usually put on watch and wait, undergo radiotherapy or have surgery in an attempt to remove the tumor. Between 70 and 85% of meningioma cases are lower grade so, if the blood test—or liquid biopsy—is carried out these patients may well be spared surgery or radiotherapy.

The team at Plymouth, led by Professor Oliver Hanemann, has published its work on this novel biomarker known as the protein Fibulin-2 (FBLN2) in the *International Journal of Molecular Sciences*. FBLN2 has not previously been shown to play a role in meningioma development, although it has been linked to other types of cancer such as forms in the lung, liver, breast and pancreas. The team therefore believes that this study is the first to link the FBLN2 protein as a biomarker for meningioma.

The results build on the important work of the Plymouth center to identify non-invasive biomarkers of different [grades](#) of meningioma

tumors. More information on an earlier paper, "GATA-4, a potential novel therapeutic target for high-grade meningioma, regulates miR-497, a potential novel circulating biomarker for high-grade meningioma" can be found on the [Brain Tumor Research website](#).

Using tumor samples, cancer cells grown in the laboratory and liquid biopsies from patients, the scientists were able to distinguish grade I from grade II tumors. In a smaller sub-study, the researchers have shown that levels of the biomarker could differentiate between good (slower growing) and bad (faster growing) grade tumors as defined by genetic make-up.

Professor Hanemann said, "In this study, we identified FBLN2 as a novel biomarker that can distinguish grade II from grade I meningiomas. Higher levels of this biomarker were found in tumor samples from grade II meningioma compared with the grade I form. We also showed that higher levels of FBLN2 can be detected in blood samples from grade II meningioma patients, compared to those from grade I meningioma patients. The identification of FBLN2 as a [biomarker](#) for [meningioma](#) has significant potential to improve the diagnosis, treatment, prognosis and follow-up of meningiomas."

Hugh Adams, spokesman for Brain Tumor Research, which funded the study said, "This is an exciting breakthrough which could see patients spared the ordeal of neurosurgery at what is already likely to be one of the most difficult times of their life. In the UK, 16,000 people are diagnosed with a brain [tumor](#) each year and more children and adults under the age of 40 are lost to brain tumors than any other cancer."

More information: Agbolahan A. Sofela et al. Fibulin-2: A Novel Biomarker for Differentiating Grade II from Grade I Meningiomas, *International Journal of Molecular Sciences* (2021). [DOI: 10.3390/ijms22020560](#)

Caterina Negroni et al. GATA-4, a potential novel therapeutic target for high-grade meningioma, regulates miR-497, a potential novel circulating biomarker for high-grade meningioma, *EBioMedicine* (2020). [DOI: 10.1016/j.ebiom.2020.102941](https://doi.org/10.1016/j.ebiom.2020.102941)

Provided by University of Plymouth

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