

Scientists working to develop new brain tumour vaccine

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Professor Geoff Pilkington. Credit: University of Portsmouth

Scientists have embarked on a new study aimed at developing a vaccine to target the most deadly form of brain tumour.

Researchers at the University of Portsmouth and Nottingham Trent University are working to find a treatment for glioblastoma multiforme (GBM) which kills more people than the other 120 types of brain tumour

put together.

Due to the highly aggressive nature of the disease – and the lack of successful curative treatments – there is an urgent need for novel therapeutic approaches such as immunotherapy.

The scientists will focus their attention on developing protective immune responses against tumour molecules such as 'HAGE' and 'TrP2', which are present in the cancer of GBM patients.

These molecules will be assessed for their ability to generate strong anti-GBM tumour immunity as well as their ability to reduce and cure established tumours.

The researchers will also determine whether blood from patients contains HAGE and/or TrP2-specific immune cells that are capable of recognising GBM tumours which express these molecules. This will demonstrate the ability of a patient's immune system to identify – and kill – the cancer cells, providing insight into the effectiveness of the treatment.

If their initial analysis proves successful, then the researchers aim to progress the treatment into clinical trials.

The £95,000 study is being funded by the Headcase Cancer Trust, the only UK charity which dedicates its funding solely to research which aims to find a cure for GBM brain tumours.

GBM is the most common and aggressive form of glioma and carries a very poor prognosis. It is responsible for up to 5,000 deaths in UK each year, and – even with intensive chemotherapy – patients have an average survival time of just 14 months.

Professor Geoff Pilkington, who directs the Brain Tumour Research Centre of Excellence at University of Portsmouth, said: "This funding brings together the existing expertise of Nottingham Trent University in immunological approaches to the treatment of advanced cancers, with the considerable experience of the University of Portsmouth's Brain Tumour Research Centre in the field of GBM research.

"We hope that the united strengths of the two teams will provide a novel approach which may bring renewed hope for those suffering from the most malignant and resistant form of [brain tumour](#), GBM."

Dr Stephanie McArdle, a scientist in the John van Geest Cancer Research Centre at Nottingham Trent University, said: "Vaccines can effectively protect us from diseases such as hepatitis, measles and tetanus – and vaccine-based immunotherapies also offer an approach for the treatment of cancer. They are relatively non-toxic and have the potential to induce immunological memory which could provide long-term protection against disease recurrence.

"We want to develop a HAGE-based vaccine, which alone, or in conjunction with other treatments, can treat GBM effectively."

Headcase Cancer Trust's founder Colin Speirs lost his wife Becky to GBM in 2010.

He said: ""At Headcase we believe that the clear way forward to find a cure for GBM is to use novel approaches, cutting edge research and a collaborative strategy. The [cancer](#) researchers at Nottingham Trent University and the University of Portsmouth, or 'wizards' as we call them, are providing just that.

"We strongly believe that the development of immunotherapies will see a major breakthrough in the treatment of this horrendous disease.

"Personally, also, I'm delighted to be able to put something back into Nottingham Trent University, where Becky and I studied and met."

The vaccine 'delivery system' utilised by the scientists will be Scancell's 'Immunobody' technology, a version of which has been successfully used to develop SCIB1, an ImmunoBody vaccine for the treatment of melanoma which has recently shown a highly promising survival trend in a Phase 1/2 clinical trial.

Provided by University of Portsmouth

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