Medical Xpress

Early promise for first targeted brain cancer treatment

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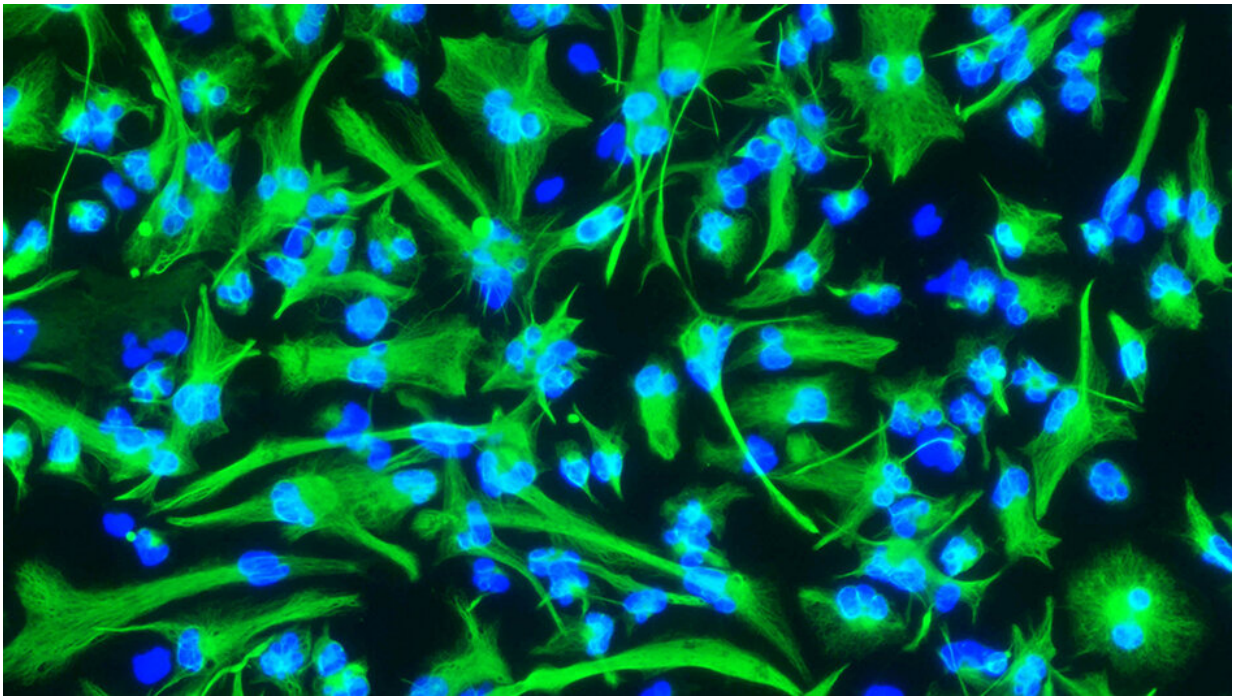

Credit: Institute of Cancer Research

A new drug could become the first ever targeted brain cancer treatment, with encouraging early results from a phase 1 trial suggesting it could treat some patients with advanced disease.

Two of the first 20 patients treated for a highly aggressive type of brain cancer called glioblastoma responded to lisavanbulin, a type of targeted

cancer drug.

Targeted treatments block the growth and spread of cancer by interfering with specific changes to proteins or genes that are involved in the growth, progression, and spread of cancer. There are currently no targeted (also known as personalized) treatments for brain cancer as it takes intense research efforts to identify targets and design drugs against them, and in brain cancer there is the additional challenge of making drugs that can penetrate the blood-brain barrier.

However, researchers at The Royal Marsden NHS Foundation Trust and The Institute of Cancer Research, London, found lisavanbulin was particularly effective in patients with a high expression of a protein called EB1 (end-binding protein 1).

One patient's tumor shrunk by over 80 percent

Results from the phase 1 trial, presented at the American Society of Clinical Oncology (ASCO) 2021 conference, reveal two out of the three EB1-positive patients enrolled on the phase 1 trial, showed a long-lasting response to the drug, with one patient's tumor shrinking by over 80 percent.

The early trial results suggest that lisavanbulin can slow down cancer growth or even shrink tumors in some EB1-positive patients with aggressive brain cancers, who have few other treatment options available to them.

The results are supported by previous early studies on mice, that demonstrated lisavanbulin can penetrate the brain to target cancer cells and EB1 positivity was predictive of response to the drug.

Each year around 5,000 people are diagnosed with glioblastoma in the

UK and around 5 percent are EB1-positive.

Researchers believe lisavanbulin is effective for this patient group because EB1 is involved in the functioning of microtubules, which are required for cancer cell division. As lisavanbulin acts upon the microtubules, treatment of EB1-positive patients is postulated to interfere with the process of cell division, resulting in enhanced cancer cell death.

Ongoing phase 2 trial

Following these results, an international phase 2 study was opened to EB1-positive patients with advanced glioblastoma. The Royal Marsden is leading this trial, with centers across the UK, Switzerland and Germany currently recruiting patients.

The trial is being funded by Basilea Pharmaceutica International Ltd., who developed lisavanbulin, and the work is supported by the NIHR Biomedical Research Center at The Royal Marsden and The Institute of Cancer Research (ICR).

Paul Nicholson, 37 from Brighton, was diagnosed with glioblastoma in 2017 and joined the Basilea trial in 2018 at The Royal Marsden. Three years later, the treatment is still working, and Paul's cancer has shrunk by over 80 percent. He said:

"For months before my diagnosis, I had been experiencing headaches, seizures and altered vision, with my friends noticing a shift in my personality as I'd become snappier. I was admitted to A&E after collapsing at home. Scans revealed a tumor the size of a fist in my head and, following surgery, cancer was confirmed two weeks later. It was incredibly upsetting for me and my wife to hear that my estimated life expectancy was just over one year—our son, Teddy, had been born six

months earlier.

"I was then treated with radiotherapy and chemotherapy which didn't work, so it was a massive relief to join this trial. At my initial screening, I was told there was a 5 percent chance the drug would work but, amazingly, my scans are still looking good.

"I wasn't allowed to use my driving license for a few years following my diagnosis, but I got it back last year which has been brilliant. I bought a campervan and, though we haven't been able to take it abroad yet, we recently went to Legoland and the Cotswolds with Teddy. I'm lucky to still be here and I want to share as many experiences as possible with my family while I can."

Hope for some patients with glioblastoma

Study leader Dr. Juanita Lopez, Consultant Medical Oncologist at The Royal Marsden NHS Foundation Trust and Clinical Researcher at The Institute of Cancer Research, London, said:

"We are in a new era of personalized medicine, with markers in cancer cells offering vital clues to what treatment could target an individual's disease. This encouraging early study suggests some patients with advanced brain cancer who are EB1-positive could be treated with lisavanbulin, a targeted drug which blocks the growth of cancer cells.

"We believe that our findings could be a key step in the development of the world's first targeted brain cancer treatment, offering hope to some patients with aggressive glioblastoma. People with brain cancer currently have very poor survival rates and lack treatment options, so this could be a very welcome addition to our limited arsenal of tools to combat the disease."

More information: The potential utility of end-binding protein 1 (EB1) as response-predictive biomarker for lisavanbulin: A phase 2 study of lisavanbulin (BAL101553) in adult patients with recurrent glioblastoma. meetinglibrary.asco.org/record/201197/abstract

Provided by Institute of Cancer Research