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# Researchers find possible way to block the spread of deadly brain tumors

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Researchers at the Translational Genomics Research Institute (TGen) may have found a way to stop the often-rapid spread of deadly brain tumors.

A gene with the playful-sounding name NHERF-1 may be a serious target for drugs that could prevent malignant tumors from rapidly multiplying and invading other parts of the brain, according to a cover story in this month's edition of *Neoplasia*, an international journal of cancer research.

Cancer cell movement and rapid division are key characteristics of malignant brain tumors known as glioblastoma multiforme, or GBM.

Dr. Michael Berens, Director of TGen's Cancer and Cell Biology Division, said the recent findings are a major step toward devising a treatment for GBM, which because of its ability to rapidly grow within the brain often means patients have little time to survive.

"Controlling the actions of tumor cells by regulating NHERF-1 implicates it as a possible therapeutic target for treating brain cancer," said Dr. Kerri Kislin, a scientist in TGen's Cancer and Cell Biology Division.

"Our findings suggest a novel mechanism defining NHERF-1 as a 'molecular switch' that regulates the GBM tumor cell's ability to migrate or divide," said Dr. Kislin, the scientific paper's lead author.

Dr. Berens, the paper's senior author, said the advances made by TGen not only confirm NHERF-1 as a gene associated with brain tumors, but also pinpoint it as a possible cause for their rapid growth and spread of GBM.

"Dr. Kislin's work has meant a fast maturation of NHERF-1 from a candidate gene associated with glioma invasion to positioning it as having a verified role in contributing to the malignant behavior of the disease," Dr. Berens said.

TGen scientists are scheduled to present their findings at the 100th annual meeting of the American Association for Cancer Research, April 18-22 in Denver.

Glioblastomas are essentially incurable tumors, in part, because there is no way to remove them surgically and ensure that all of the invading tumor cells are gone, even when surgery is followed by radiation treatments and conventional anti-cancer drugs.

"A chemotherapeutic treatment which targets these migrating cells would therefore have significant ramifications on patient survival," said Dr. Jennifer M. Eschbacher, a Neuropathology Fellow at Barrow Neurological Institute, who examined tumors for the study.

"As a pathologist, I examined expression of NHERF-1 under the microscope in tumor sections, including both invading edges of tumor and cellular tumor cores. We found NHERF-1 to be robustly expressed by invading tumors cells, when compared to tumor cores, suggesting that this factor plays a significant role in tumor invasion," Dr. Eschbacher said.

In the study, depletion of NHERF-1 stopped the migration of glioma - brain cancer - cells, she said. "These results suggest that NHERF-1 plays

an important role in tumor biology, and that targeted inhibition of this factor may have significant effects on patient treatment and survival."

Source: The Translational Genomics Research Institute