

New biomarker may help in detecting gliomas

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Researchers using sophisticated genetic testing techniques have identified a promising new biomarker for diagnosis of glioma—the most common type of malignant brain tumor, reports the January issue of [Neurosurgery](#), official journal of the Congress of Neurological Surgeons.

The [biomarker](#) ELTD1 "may serve as an additional biomarker for gliomas in preclinical and [clinical diagnosis](#) of gliomas," according to the study by Rheel A. Towner of Oklahoma Medical Research Foundation, Oklahoma City.

Biomarker Reflects Rapid Blood Vessel Development

Dr. Towner and colleagues used advanced "data mining and bioinformatic" techniques to evaluate genes and [gene products](#) potentially associated with gliomas. Glioma is a general term referring to tumors originating in the [glial cells](#) of the brain and spinal cord. Gliomas make up about 40 percent of all [brain tumors](#) and 80 percent of [central nervous system](#) cancers. Especially for advanced (high-grade) gliomas such as glioblastoma multiforme (GBM), expected survival is very poor.

Out of nearly 200 possible markers analyzed, ELTD1 was identified as the strongest candidate for a significant association with glioma. There's special interest in ELTD1 because it is linked to development of new blood vessels, or angiogenesis—a characteristic of rapidly growing cancers. (ELTD1 stands for "epidermal growth factor, latrophilin and

seven transmembrane domain-containing protein 1.")

Studies in human patients suggested that ELTD1 was strongly associated with gliomas. ELTD1 was more highly expressed in specimens from 50 patients with high-grade gliomas, compared to 21 patients with lower-grade gliomas.

Higher levels of ELTD1 expression were associated with a higher grade of glioma, and with lower survival. ELTD1 compared well with other known markers of glioma, such as [vascular endothelial growth factor](#). It also appeared to be associated with one specific subtype of GBM (mesenchymal GBM).

In further experiments, the researchers transplanted glioma cells into the brains of rats. As the tumors developed, they showed elevated levels of ELTD1, compared to normal brain tissue. The rat studies included evaluation of a "molecular MRI technique" for measuring ELTD1 levels in the living brain.

A Helpful Marker for Glioma Diagnosis?

Even with modern treatments, GBM and other malignant gliomas are devastating cancers. In recent years, advances in research have led to the identification of biomarkers associated with glioma. Dr. Towner and colleagues write, "Validation of more biomarkers for GBM could be beneficial in the diagnosis and therapeutic intervention of this disease."

With further study, ELTD1 could become a useful new marker of glioma, including GBM. Gliomas show increased expression of ELTD1, and higher levels of ELTD1 expression are associated with higher tumor grade and a worse prognosis. "Any increase in ELTD1 will more than likely be associated with increased angiogenesis or neovascularization [new [blood vessel development](#)] in gliomas," the researchers write.

Although the findings are only preliminary, Dr. Towner and coauthors suggest that ELTD1 could be useful in detecting the presence and grade of gliomas—particularly high-grade gliomas such as GBM. They conclude, "[T]his biomarker may play an important diagnostic role in addition to currently used markers for gliomas, particularly as a histological marker for identifying vascular proliferation."

Provided by Wolters Kluwer Health

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