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A thought-provoking new therapeutic target for brain cancer?

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Glioblastoma multiforme (GBM) is the most common of all malignant brain tumors that originate in the brain. Patients with GBM have a poor prognosis because it is a highly aggressive form of cancer that is commonly resistant to current therapies. New therapeutic approaches are therefore much needed. Joanna Phillips, Zena Werb, and colleagues, at the University of California, San Francisco, have now identified a potential new therapeutic target for the treatment of GBM.

A substantial proportion of GBMs show evidence of abnormal activation of signaling pathways triggered by a cell surface protein known as PDGFR-alpha, and this is thought to drive the tumor. PDGFR-alpha triggers activation of signaling pathways when it binds the growth factor PDGF. Phillips, Werb, and colleagues found that the protein SULF2, which is known to regulate the availability of growth factors such as PDGF, was expressed in primary human GBM tumors and cell lines.

Moreover, GBMs characterized by abnormal activation of signaling pathways downstream of PDGFR-alpha showed the strongest SULF2 expression. Importantly, knocking down expression of SULF2 in human GBM cell lines decreased the growth of these cells upon transplantation into mice. Phillips, Werb, and colleagues therefore suggest that SULF2 is a candidate therapeutic target for the treatment of GBM and that assessing its levels could identify tumors dependent on growth factors such as PDGF. The latter is important as PDGFR-alpha and other molecules to which growth factors bind are themselves good therapeutic targets.

More information: www.jci.org/articles/view/5821 … 7d9ee1ebe13cc1c6c025