

Molecular Cancer Research

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Cancer Genes and Genomics

Primary Glioblastomas Express Mesenchymal Stem-Like Properties

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Glioblastoma is the most common and aggressive primary brain cancer. Recent isolation and characterization of brain tumor-initiating cells supports the concept that transformed neural stem cells may seed glioblastoma. We previously identified a wide array of mesenchymal tissue transcripts overexpressed in a broad set of primary glioblastoma (*de novo*) tumors but not in secondary glioblastoma (derived from lower-grade) tumors, low-grade astrocytomas, or normal brain tissues. Here, we extend this observation and show that a subset of primary glioblastoma tumors and their derived tumor lines express cellular and molecular markers that are associated with mesenchymal stem cells (MSC) and that glioblastoma cell cultures can be induced to differentiate into multiple mesenchymal lineage-like cell types. These findings suggest either that a subset of primary glioblastomas derive from transformed stem cells containing MSC-like properties and retain partial phenotypic aspects of a MSC nature in

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tumors or that glioblastomas activate a series of genes that result in mesenchymal properties of the cancer cells to effect sustained tumor growth and malignant progression. (Mol Cancer Res 2006;4 (9):607-19)


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