

# Immunohistochemical assessment of MGMT expression and p53 mutation in glioblastoma multiforme

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## ABSTRACT

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**Aims and background.** The prognosis of glioblastoma multiforme (GBM) remains poor despite advances in surgery and adjuvant therapies. *TP53* and O6-methylguanine-DNA methyltransferase (*MGMT*) are tumor suppressor genes that are implicated in GBM resistance to radiation and chemotherapy. In order to assess the expression of the protein products of these two genes, 50 GBM samples were analyzed in this study.

**Methods.** Demographic and clinical data along with postsurgery tumor samples from 50 GBM patients were collected from the pathology archive. MGMT and p53 protein expression was evaluated by immunohistochemistry.

**Results.** 52% of cases had mutated p53, predominantly expressed in the nuclei of tumor cells. MGMT immunohistochemistry was negative in 35 (70%) patients and positive in 15 (30%) others. Immunohistochemistry-negative specimens for MGMT expression showed a significantly higher expression of mutant p53 ( $P = 0.03$ ).

**Conclusion.** MGMT expression was significantly lower in cells bearing p53 mutation. This indicates that there is a tendency for p53 activity to decline with MGMT inactivation. However, this study could not deduce which protein was the regulator of the other. Free full text available at [www.tumorionline.it](http://www.tumorionline.it)

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**Key words:** glioblastoma multiforme, immunohistochemical assessment, O6-methylguanine methyltransferase, p53.

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