

## Association between MGMT promoter hypermethylation and p53 mutation in glioblastoma

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### Abstract

O<sup>6</sup>-methylguanine-DNA methyltransferase (MGMT) is a DNA repair enzyme that removes alkyl groups from the O<sup>6</sup> position of guanine. MGMT is transcriptionally silenced by promoter hypermethylation in several human neoplasia. We used methylation-specific PCR (MSP) to analyze the MGMT promoter methylation status of 60 glioblastoma tumors. Hypermethylation was detected in 24 of 60 (40%) samples. We also analyzed mutant p53 expression by immunohistochemical analysis of glioblastoma tissue samples. A significant association was found between MGMT methylation and p53 mutation status ( $p < 0.05$ ). These results suggested that epigenetic inactivation of MGMT plays an important role in the survival of glioblastoma patients and this inactivated gene involved in p53 mutation.

### Reaxys Database Information

### Author keywords

Glioblastoma; Hypermethylation; O<sup>6</sup>-methylguanine-DNA methyltransferase; P53

### Indexed Keywords

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**EMTREE medical terms:** adolescent; adult; aged; article; child; clinical article; controlled study; gene mutation; genetic association; glioblastoma; human; human tissue; immunohistochemistry; methylation; polymerase chain reaction; priority journal; promoter region; protein expression; school child

**MeSH:** Adolescent; Adult; Aged; Aged, 80 and over; Brain Neoplasms; Child; CpG Islands; DNA Methylation; DNA Modification Methylases; DNA Repair Enzymes; Gene Expression Regulation, Neoplastic; Glioblastoma; Humans; Immunohistochemistry; Iran; Middle Aged; Mutation; Polymerase Chain Reaction; Promoter Regions, Genetic; Tumor Suppressor Protein p53; Tumor Suppressor Proteins; Young Adult

*Medline is the source for the MeSH terms of this document.*

**Chemicals and CAS Registry Numbers:** DNA Modification Methylases, 2,1,1.-; DNA Repair Enzymes, 6,0,1.-; MGMT protein, human, 2,1,1,13; TP53 protein, human; Tumor Suppressor Protein p53; Tumor Suppressor Proteins

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