

MGMT (FL-207): sc-28241

BACKGROUND

MGMT (O⁶-methylguanine-DNA methyltransferase) is transcriptionally activated in response to DNA damage and functions to repair mutagenic and cytotoxic O⁶-alkylguanine lesions caused by carcinogens or cytostatic drugs. MGMT induction by ionising radiation does not occur in p53-deficient mice, suggesting that MGMT induction may require p53. Similarly, MGMT mRNA and protein were shown to be inducible by ionising radiation only in cell lines that express functional p53, and not in cell lines that do not express wild type p53. In contrast, in a study of oral cancer cell lines, high MGMT activity was associated with the presence of mutant p53. Similarly, MGMT activity was significantly lower in ovarian tumors with wild-type p53 than in tumors with mutant p53, supporting the view that wild type p53 downregulates the basal MGMT promoter.

REFERENCES

1. D'Incalci, M., et al. 1988. Importance of the DNA repair enzyme O⁶-alkylguanine alkyltransferase (AT) in cancer chemotherapy. *Cancer Treat. Rev.* 15: 279-292.
2. Pegg, A.E. 1990. Mammalian O⁶-alkylguanine-DNA alkyltransferase: regulation and importance in response to alkylating carcinogenic and therapeutic agents. *Cancer Res.* 50: 6119-6129.
3. Kaina, B., et al. 1993. Contribution of O⁶-alkylguanine and N-alkylpurines to the formation of sister chromatid exchanges, chromosomal aberrations, and gene mutations: new insights gained from studies of genetically engineered mammalian cell lines. *Environ. Mol. Mutagen.* 22: 283-292.
4. Rafferty, J.A., et al. 1996. Induction of murine O⁶-alkylguanine-DNA-alkyltransferase in response to ionising radiation is p53 gene dose dependent. *Oncogene* 12: 693-697.
5. Grombacher, T., et al. 1998. p53 is involved in regulation of the DNA repair gene O⁶-methylguanine-DNA methyltransferase (MGMT) by DNA damaging agents. *Oncogene* 17: 845-851.
6. Guo, W., et al. 1999. High O⁶-methylguanine methyl transferase activity is frequently found in human oral cancer cells with p53 inactivation. *Int. J. Oncol.* 15: 817-821.
7. Hengstler, J.G., et al. 1999. Activity of O⁶-methylguanine-DNA methyltransferase in relation to p53 status and therapeutic response in ovarian cancer. *Int. J. Cancer* 84: 388-395.

CHROMOSOMAL LOCATION

Genetic locus: MGMT (human) mapping to 10q26.3; Mgmt (mouse) mapping to 7 F4.

SOURCE

MGMT (FL-207) is a rabbit polyclonal antibody raised against amino acids 1-207 representing full length MGMT of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MGMT (FL-207) is recommended for detection of MGMT of human and, to a lesser extent, mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

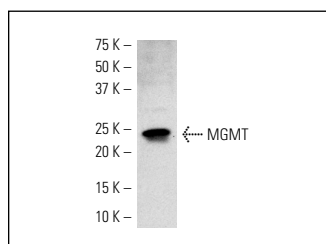
Suitable for use as control antibody for MGMT siRNA (h): sc-35927, MGMT siRNA (m): sc-35928, MGMT shRNA Plasmid (h): sc-35927-SH, MGMT shRNA Plasmid (m): sc-35928-SH, MGMT shRNA (h) Lentiviral Particles: sc-35927-V and MGMT shRNA (m) Lentiviral Particles: sc-35928-V.

Molecular Weight of unmodified MGMT: 26 kDa.

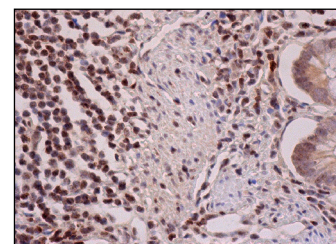
Molecular Weight of ubiquitinated MGMT: 50 kDa.

Positive Controls: MCF7 nuclear extract: sc-2149, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

DATA



MGMT (FL-207): sc-28241. Western blot analysis of MGMT expression in MCF7 nuclear extract.



MGMT (FL-207): sc-28241. Immunoperoxidase staining of formalin fixed, paraffin-embedded human appendix tissue showing nuclear staining of glandular cells and lymphoid cells.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.