

MGMT (h): 293 Lysate: sc-110499

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 ionizing radiation does not occur in p53-deficient mice, suggesting that MGMT induction may require p53. Similarly, MGMT mRNA and protein have been shown to be inducible by ionizing radiation only in cell lines that express functional p53, and not in cell lines that do not express wildtype p53. In contrast, high MGMT activity is associated with the presence of mutant p53, in a study of oral cancer cell lines. Similarly, MGMT activity is significantly lower in ovarian tumors with wildtype p53 than in tumors with mutant p53, supporting the view that wildtype p53 downregulates the basal MGMT promoter.

REFERENCES

1. D'Incalci, M., et al. 1988. Importance of the DNA repair enzyme O⁶-methylguanine 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 ionizing 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.

PRODUCT

MGMT (h): 293 Lysate represents a lysate of human MGMT transfected 293 cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

MGMT (h): 293 Lysate is suitable as a Western Blotting positive control for human reactive MGMT antibodies. Recommended use: 10-20 µl per lane.

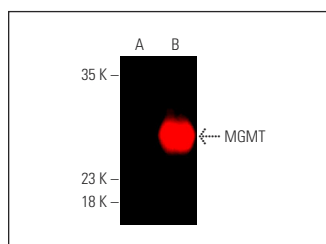
Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

MGMT (E-1): sc-166528 is recommended as a positive control antibody for Western Blot analysis of enhanced human MGMT expression in MGMT transfected 293 cells (starting dilution 1:100, dilution range 1:100-1:1,000).

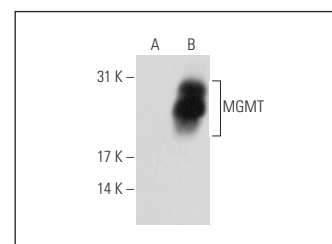
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



MGMT (E-1): sc-166528. Near-infrared western blot analysis of MGMT expression in non-transfected: sc-110760 (A) and human MGMT transfected: sc-110499 (B) 293 whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.



MGMT (C-5): sc-271154. Western blot analysis of MGMT expression in non-transfected: sc-110760 (A) and human MGMT transfected: sc-110499 (B) 293 whole cell lysates.

RESEARCH USE

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

PROTOCOLS

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