SANTA CRUZ BIOTECHNOLOGY, INC.

MGMT (C-20): sc-8825

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, high MGMT activity was associated with the presence of mutant p53, in a study of oral cancer cell lines. Similarly, MGMT activity was significantly lower in ovarian tumors with wildtype p53 than in tumors with mutant p53, supporting the view that wildtype p53 down-regulates the basal MGMT promoter.

REFERENCES

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

CHROMOSOMAL LOCATION

Genetic locus: MGMT (human) mapping to 10q26.3.

SOURCE

MGMT (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of 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.

Blocking peptide available for competition studies, sc-8825 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

MGMT (C-20) is recommended for detection of MGMT of human 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

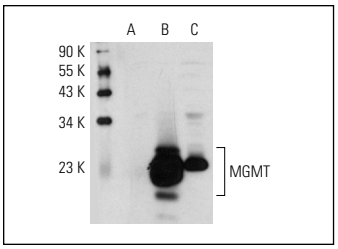
Suitable for use as control antibody for MGMT siRNA (h): sc-35927, MGMT shRNA Plasmid (h): sc-35927-SH and MGMT shRNA (h) Lentiviral Particles: sc-35927-V.

Molecular Weight of unmodified MGMT: 26 kDa.

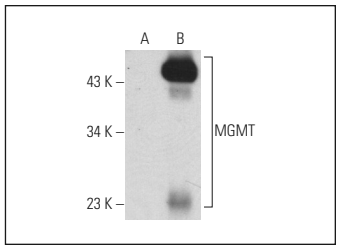
Molecular Weight of MGMT ubiquitinated: 50 kDa.

Positive Controls: MGMT (h): 293 Lysate: sc-110499, MCF7 nuclear extract: sc-2149 or Jurkat whole cell lysate: sc-2204.

DATA



MGMT (C-20): sc-8825. Western blot analysis of MGMT expression in non-transfected 293: sc-110760 (**A**) and human MGMT transfected 293: sc-110499 (**B**) whole cell lysates and MCF7 nuclear extract (**C**).



MGMT (C-20): sc-8825. Western blot analysis of MGMT expression in non-transfected: sc-117752 (**A**) and human MGMT transfected: sc-159668 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Smith-Sorensen, B., et al. 2002. Frequent promoter hypermethylation of the O6-methylguanine-DNA methyltransferase (MGMT) gene in testicular cancer. Oncogene 21: 8878-8884.
2. Skotheim, R.I., et al. 2003. Candidate genes for testicular cancer evaluated by *in situ* protein expression analyses on tissue microarrays. Neoplasia 5: 397-404.
3. Su, H., et al. 2005. Noninvasive targeted imaging of matrix metalloproteinase activation in a murine model of postinfarction remodeling. Circulation 112: 2157-3167.
4. Berger, Y., et al. 2006. Targeting the endothelin axis in human melanoma: combination of endothelin receptor antagonism and alkylating agents. Exp. Biol. Med. 231: 1111-1119.
5. Riccitelli, E., et al. 2013. Extracellular sphingosine-1-phosphate: a novel actor in human glioblastoma stem cell survival. PloS ONE 8: e68229.

RESEARCH USE

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