SANTA CRUZ BIOTECHNOLOGY, INC.

MGMT (SPM287): sc-56432

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

MGMT (O^6-methylguanine-DNA methyltransferase) is transcriptionally activated in response to DNA damage and functions to repair mutagenic and cytotoxic O^6-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.

CHROMOSOMAL LOCATION

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

SOURCE

MGMT (SPM287) is a mouse monoclonal antibody raised against purified recombinant MGMT protein of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MGMT (SPM287) is recommended for detection of MGMT of mouse, rat and 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

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: MGMT (h): 293T Lysate: sc-159668, MCF7 whole cell lysate: sc-2206 or Jurkat whole cell lysate: sc-2204.

RESEARCH USE

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

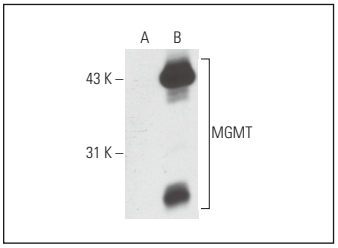
PROTOCOLS

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

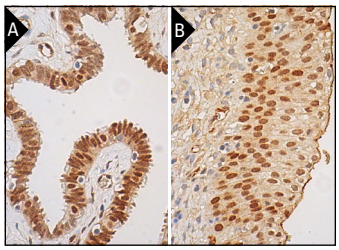
STORAGE

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

DATA



MGMT (SPM287): sc-56432. Western blot analysis of MGMT expression in non-transfected: sc-117752 (**A**) and human MGMT transfected: sc-159668 (**B**) 293T whole cell lysates.



MGMT (SPM287): sc-56432. Immunoperoxidase staining of formalin fixed, paraffin-embedded human fallopian tube tissue showing nuclear staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing nuclear staining of urothelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Theocharis, S., et al. 2011. Expression of DNA repair proteins, MSH2, MLH1 and MGMT in mobile tongue squamous cell carcinoma: associations with clinicopathological parameters and patients' survival. J. Oral Pathol. Med. 40: 218-226.
2. Michailidi, C., et al. 2015. Expression and promoter methylation status of hMLH1, MGMT, APC, and CDH1 genes in patients with colon adenocarcinoma. Exp. Biol. Med 240: 1599-1605.
3. Pishvaian, M.J., et al. 2018. A phase 2 study of the PARP inhibitor veliparib plus temozolomide in patients with heavily pretreated metastatic colorectal cancer. Cancer 124: 2337-2346.
4. Forte, I.M., et al. 2019. Targeted therapy based on p53 reactivation reduces both glioblastoma cell growth and resistance to temozolomide. Int. J. Oncol. 54: 2189-2199.
5. Dehghani-Soltani, S., et al. 2021. Pulsed and discontinuous electromagnetic field exposure decreases temozolomide resistance in glioblastoma by modulating the expression of O^6-methylguanine-DNA methyltransferase, cyclin-D1, and p53. Cancer Biother. Radiopharm. 36: 579-587.
6. Jin, L., et al. 2022. Pharmacological inhibition of serine synthesis enhances temozolomide efficacy by decreasing O^6-methylguanine DNA methyltransferase (MGMT) expression and reactive oxygen species (ROS)-mediated DNA damage in glioblastoma. Lab. Invest. 102: 194-203.
7. Kundu, M., et al. 2023. Magnolol and Temozolomide exhibit a synergistic anti-glioma activity through MGMT inhibition. Biochim. Biophys. Acta Mol. Basis Dis. 1869: 166782.

CONJUGATES

See **MGMT (E-1): sc-166528** for MGMT antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.