SANTA CRUZ BIOTECHNOLOGY, INC.

MGMT (E-1): sc-166528

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.

REFERENCES

1. D'Incalci, M., et al. 1988. Importance of the DNA repair enzyme O^6-alkyl guanine alkyltransferase (AT) in cancer chemotherapy. Cancer Treat. Rev. 15: 279-292.
2. Pegg, A.E. 1990. Mammalian O^6-alkylguanine-DNA alkyltransferase: regulation and importance in response to alkylating carcinogenic and therapeutic agents. Cancer Res. 50: 6119-6129.

CHROMOSOMAL LOCATION

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

SOURCE

MGMT (E-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 5-35 at the N-terminus of MGMT of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MGMT (E-1) is available conjugated to agarose (sc-166528 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166528 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166528 PE), fluorescein (sc-166528 FITC), Alexa Fluor® 488 (sc-166528 AF488), Alexa Fluor® 546 (sc-166528 AF546), Alexa Fluor® 594 (sc-166528 AF594) or Alexa Fluor® 647 (sc-166528 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166528 AF680) or Alexa Fluor® 790 (sc-166528 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166528 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

MGMT (E-1) is recommended for detection of MGMT of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

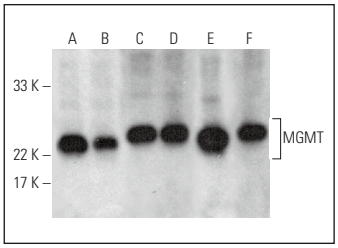
Suitable for use as control antibody for MGMT siRNA (h): sc-35927, MGMT siRNA (m): sc-35928, MGMT shRNA Plasmid (h): sc-35927-SH, MGMT shRNA Plasmid (m): sc-35928-SH, MGMT shRNA (h) Lentiviral Particles: sc-35927-V and MGMT shRNA (m) Lentiviral Particles: sc-35928-V.

Molecular Weight of unmodified MGMT: 26 kDa.

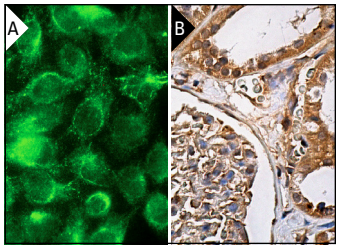
Molecular Weight of ubiquitinated MGMT: 50 kDa.

Positive Controls: MCF7 nuclear extract: sc-2149, Jurkat whole cell lysate: sc-2204 or MCF7 whole cell lysate: sc-2206.

DATA



MGMT (E-1) HRP: sc-166528 HRP. Direct western blot analysis of MGMT expression in Jurkat (**A**), Hep G2 (**B**), Daudi (**C**) and MCF7 (**D**) whole cell lysates and MCF7 (**E**) and Jurkat (**F**) nuclear extracts.



MGMT (E-1): sc-166528. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing nuclear and cytoplasmic staining of cells in glomeruli and tubules (**B**).

SELECT PRODUCT CITATIONS

1. Costa, J.R., et al. 2017. Endocrine-disrupting effects of methylparaben on the adult gerbil prostate. Environ. Toxicol. 32: 1801-1812.
2. Llaguno-Munive, M., et al. 2018. Mifepristone overcomes tumor resistance to temozolomide associated with DNA damage repair and apoptosis in an orthotopic model of glioblastoma. Cancers 11: 16.
3. Gomes, L.S., et al. 2019. Aluminum disrupts the prenatal development of the male and female gerbil prostate *(Meriones unguiculatus).* Exp. Mol. Pathol. 107: 32-42.
4. Raghavan, S., et al. 2020. A "clickable" probe for active MGMT in glioblastoma demonstrates two discrete populations of MGMT. Cancers 12: 453.
5. Feng, X., et al. 2021. Banxia xiexin decoction affects drug sensitivity in gastric cancer cells by regulating MGMT expression via IL-6/JAK/STAT3-mediated PD-L1 activity. Int. J. Mol. Med. 48: 165.

RESEARCH USE

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