

MTH1 (H-1): sc-271082

BACKGROUND

MTH1, also known as NUDT1 (nudix (nucleoside diphosphate linked moiety X)-type motif 1), is a 179 amino acid cytoplasmic protein that is a member of the nudix hydrolase family. Highly expressed in testis, thymus and proliferating blood lymphocytes, MTH1 functions as an antimutagenic that hydrolyzes oxidized purine nucleoside triphosphates to their corresponding monophosphates. Through its ability to enzymatically hydrolyze ATP and GTP to AMP and GMP, respectively, MTH1 prevents misincorporation of GTP into DNA, thus preventing A:T to C:G transversions. The cytoplasmic location of MTH1, along with its antimutagenic capabilities, suggests that it may also be involved in the sanitization of nucleotide pools for both mitochondrial and nuclear genomes. Four isoforms of MTH1 exist—three of which are formed due to alternative splicing events and one of which is formed via a single-nucleotide polymorphism. Overexpression of MTH1 is implicated in prostate and cell lung carcinomas.

REFERENCES

1. Furuichi, M., et al. 1994. Genomic structure and chromosome location of the human MutT homologue gene MTH1 encoding 8-oxo-dGTPase for prevention of A:T to C:G transversion. *Genomics* 24: 485-490.
2. Takama, F., et al. 2000. Mutation analysis of the hMTH1 gene in sporadic human ovarian cancer. *Int. J. Oncol.* 17: 467-471.
3. Kennedy, C.H., et al. 2003. Expression of human MutT homologue (hMTH1) protein in primary non-small-cell lung carcinomas and histologically normal surrounding tissue. *Free Radic. Biol. Med.* 34: 1447-1457.

CHROMOSOMAL LOCATION

Genetic locus: NUDT1 (human) mapping to 7p22.3; Nudt1 (mouse) mapping to 5 G2.

SOURCE

MTH1 (H-1) is a mouse monoclonal antibody raised against amino acids 38-197 mapping at the C-terminus of MTH1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MTH1 (H-1) is available conjugated to agarose (sc-271082 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271082 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271082 PE), fluorescein (sc-271082 FITC), Alexa Fluor® 488 (sc-271082 AF488), Alexa Fluor® 546 (sc-271082 AF546), Alexa Fluor® 594 (sc-271082 AF594) or Alexa Fluor® 647 (sc-271082 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271082 AF680) or Alexa Fluor® 790 (sc-271082 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

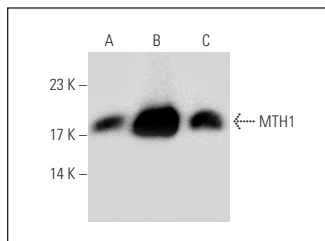
MTH1 (H-1) is recommended for detection of MTH1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MTH1 siRNA (h): sc-62647, MTH1 siRNA (m): sc-62648, MTH1 shRNA Plasmid (h): sc-62647-SH, MTH1 shRNA Plasmid (m): sc-62648-SH, MTH1 shRNA (h) Lentiviral Particles: sc-62647-V and MTH1 shRNA (m) Lentiviral Particles: sc-62648-V.

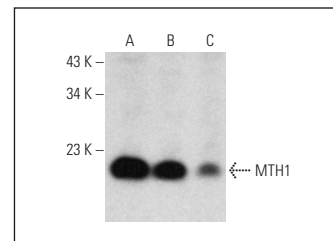
Molecular Weight of MTH1: 18 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, NTERA-2 cl.D1 whole cell lysate: sc-364181 or MTH1 (m): 293T Lysate: sc-121835.

DATA



MTH1 (H-1): sc-271082. Western blot analysis of MTH1 expression in non-transfected 293T: sc-117752 (A), mouse MTH1 transfected 293T: sc-121835 (B) and Jurkat (C) whole cell lysates.



MTH1 (H-1): sc-271082. Western blot analysis of MTH1 expression in Jurkat (A), NTERA-2 cl.D1 (B) and PC-3 (C) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Castaldo, S.A., et al. 2019. Annexin A2 regulates AKT upon H₂O₂-dependent signaling activation in cancer cells. *Cancers* 11: 492.
2. Fan, Y.G., et al. 2019. Paricalcitol accelerates BACE1 lysosomal degradation and inhibits calpain-1 dependent neuronal loss in APP/PS1 transgenic mice. *EBioMedicine* 45: 393-407.
3. Oksvold, M.P., et al. 2021. Karonudib has potent anti-tumor effects in preclinical models of B-cell lymphoma. *Sci. Rep.* 11: 6317.
4. Liu, X., et al. 2022. Co-exposure of polystyrene microplastics and iron aggravates cognitive decline in aging mice via ferroptosis induction. *Ecotoxicol. Environ. Saf.* 233: 113342.

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.