

MTHFS (G-18): sc-66469



The Power to Question

BACKGROUND

MTHFS (5-formyltetrahydrofolate cyclo-ligase) is a cytosolic protein involved in the formate metabolic process. MTHFS can account for up to thirty percent of a cells cytoplasmic folate derivatives. MTHFS, with a magnesium cofactor, catalyzes the ATP-dependent reaction that reduces 5-formyltetrahydrofolate to 5,10-methenyltetrahydrofolate. Folate, a water soluble B vitamin, is an essential molecule for DNA replication. During DNA replication 5,10-methenyltetrahydrofolate is oxidized and MTHFS is responsible for resetting the molecule. Due to its metabolic importance, a deficiency in folate can lead to numerous disease states.

REFERENCES

1. Anguera, M.C., Liu, X. and Stover, P.J. 2004. Cloning, expression, and purification of 5,10-methenyltetrahydrofolate synthetase from *Mus musculus*. *Protein Expr. Purif.* 35: 276-283.
2. Chen, S., Yakunin, A.F., Proudfoot, M., Kim, R. and Kim, S.H. 2005. Structural and functional characterization of a 5,10-methenyltetrahydrofolate synthetase from *Mycoplasma pneumoniae* (GI: 13508087). *Proteins* 61: 433-443.
3. Anguera, M.C. and Stover, P.J. 2006. Methenyltetrahydrofolate synthetase is a high-affinity catecholamine-binding protein. *Arch. Biochem. Biophys.* 455: 175-187.
4. Field, M.S., Szebenyi, D.M. and Stover, P.J. 2006. Regulation of *de novo* purine biosynthesis by methenyltetrahydrofolate synthetase in neuroblastoma. *J. Biol. Chem.* 281: 4215-4221.
5. Lee, K.M., Lan, Q., Krickler, A., Purdue, M.P., Grulich, A.E., Vajdic, C.M., Turner, J., Whitby, D., Kang, D., Chanock, S., Rothman, N. and Armstrong, B.K. 2007. One-carbon metabolism gene polymorphisms and risk of non-Hodgkin lymphoma in Australia. *Hum. Genet.* 122: 525-533.

CHROMOSOMAL LOCATION

Genetic locus: MTHFS (human) mapping to 15q25.1; Mthfs/Gm2382 (mouse) mapping to 9 E3.1.

SOURCE

MTHFS (G-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MTHFS 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-66469 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

MTHFS (G-18) is recommended for detection of MTHFS of mouse, rat and human origin, and LOC100039707 of mouse 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).

MTHFS (G-18) is also recommended for detection of MTHFS in additional species, including equine, canine and bovine.

Suitable for use as control antibody for MTHFS siRNA (h): sc-62649, MTHFS shRNA Plasmid (h): sc-62649-SH and MTHFS shRNA (h) Lentiviral Particles: sc-62649-V.

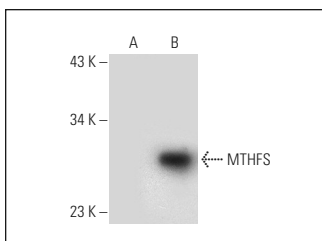
Molecular Weight of MTHFS: 25 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or MTHFS (h): 293T Lysate: sc-113997.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



MTHFS (G-18): sc-66469. Western blot analysis of MTHFS expression in non-transfected: sc-117752 (A) and human MTHFS transfected: sc-113997 (B) 293T whole cell lysates.

RESEARCH USE

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

PROTOCOLS

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