SANTA CRUZ BIOTECHNOLOGY, INC.

MTHFS (D-11): sc-390786

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

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

REFERENCES

1. Anguera, M.C., et al. 2004. Cloning, expression, and purification of 5,10-methenyltetrahydrofolate synthetase from *Mus musculus*. Protein Expr. Purif. 35: 276-283.
2. Chen, S., et al. 2005. Structural and functional characterization of a 5,10-methenyltetrahydrofolate synthetase from *Mycoplasma pneumoniae*. Proteins 61: 433-443.
3. Anguera, M.C., et al. 2006. Methenyltetrahydrofolate synthetase is a high-affinity catecholamine-binding protein. Arch. Biochem. Biophys. 455: 175-187.
4. Field, M.S., et al. 2006. Regulation of *de novo* purine biosynthesis by methenyltetrahydrofolate synthetase in neuroblastoma. J. Biol. Chem. 281: 4215-4221.
5. Lee, K.M., et al. 2007. One-carbon metabolism gene polymorphisms and risk of non-Hodgkin lymphoma in Australia. Hum. Genet. 122: 525-533.
6. Matakidou, A., et al. 2007. Prognostic significance of folate metabolism polymorphisms for lung cancer. Br. J. Cancer 97: 247-252.
7. Lim, U., et al. 2007. Gene-nutrient interactions among determinants of folate and one-carbon metabolism on the risk of non-Hodgkin lymphoma: NCI-SEER case-control study. Blood 109: 3050-3059.
8. Field, M.S., et al. 2007. Inhibition of 5,10-methenyltetrahydrofolate synthetase. Arch. Biochem. Biophys. 458: 194-201.

CHROMOSOMAL LOCATION

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

SOURCE

MTHFS (D-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 129-157 of MTHFS 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.

Blocking peptide available for competition studies, sc-390786 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

MTHFS (D-11) is recommended for detection of MTHFS of mouse, rat and human origin, and LOC100039707 of mouse 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 MTHFS siRNA (h): sc-62649, MTHFS shRNA Plasmid (h): sc-62649-SH and MTHFS shRNA (h) Lentiviral Particles: sc-62649-V.

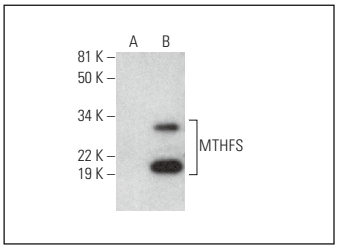
Molecular Weight of MTHFS: 25 kDa.

Positive Controls: MTHFS (h): 293T Lysate: sc-113997.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



MTHFS (D-11): sc-390786. Western blot analysis of MTHFS expression in non-transfected: sc-117752 (**A**) and human MTHFS transfected: sc-113997 (**B**) 293T whole cell lysates.

STORAGE

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

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.