

# MTHFS (h): 293T Lysate: sc-113997

## 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 derivatives. 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., 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., Kricker, 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.
6. Matakidou, A., El Gatta, R., Rudd, M.F., Webb, E.L., Bridle, H., Eisen, T. and Houlston, R.S. 2007. Prognostic significance of folate metabolism polymorphisms for lung cancer. Br. J. Cancer 97: 247-252.
7. Lim, U., Wang, S.S., Hartge, P., Cozen, W., Kelemen, L.E., Chanock, S., Davis, S., Blair, A., Schenk, M., Rothman, N. and Lan, Q. 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., Szebenyi, D.M., Perry, C.A. and Stover, P.J. 2007. Inhibition of 5,10-methenyltetrahydrofolate synthetase. Arch. Biochem. Biophys. 458: 194-201.

## CHROMOSOMAL LOCATION

Genetic locus: MTHFS (human) mapping to 15q25.1.

## PRODUCT

MTHFS (h): 293T Lysate represents a lysate of human MTHFS transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

## STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## APPLICATIONS

MTHFS (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive MTHFS antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

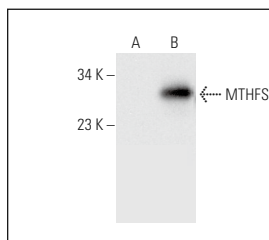
MTHFS (G-8): sc-398056 is recommended as a positive control antibody for Western Blot analysis of enhanced human MTHFS expression in MTHFS transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

## RECOMMENDED SUPPORT REAGENTS

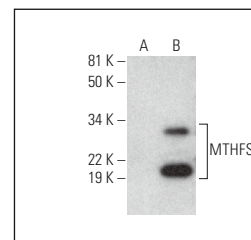
To ensure optimal results, the following support reagents are recommended:

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.

## DATA



MTHFS (G-8): sc-398056. Western blot analysis of MTHFS expression in non-transfected: sc-117752 (A) and human MTHFS transfected: sc-113997 (B) 293T whole cell lysates.



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.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.