

# MTHFS (G-8): sc-398056

## 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., 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* (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., 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

MTHFS (G-8) is a mouse monoclonal antibody raised against amino acids 1-203 representing full length MTHFS of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MTHFS (G-8) is available conjugated to agarose (sc-398056 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-398056 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398056 PE), fluorescein (sc-398056 FITC), Alexa Fluor® 488 (sc-398056 AF488), Alexa Fluor® 546 (sc-398056 AF546), Alexa Fluor® 594 (sc-398056 AF594) or Alexa Fluor® 647 (sc-398056 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398056 AF680) or Alexa Fluor® 790 (sc-398056 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

MTHFS (G-8) is recommended for detection of MTHFS 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 MTHFS siRNA (h): sc-62649, MTHFS siRNA (m): sc-62650, MTHFS shRNA Plasmid (h): sc-62649-SH, MTHFS shRNA Plasmid (m): sc-62650-SH, MTHFS shRNA (h) Lentiviral Particles: sc-62649-V and MTHFS shRNA (m) Lentiviral Particles: sc-62650-V.

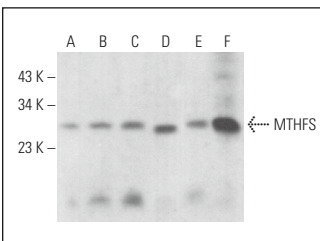
Molecular Weight of MTHFS: 25 kDa.

Positive Controls: MTHFS (h): 293T Lysate: sc-113997, Jurkat whole cell lysate: sc-2204 or MDA-MB-231 cell lysate: sc-2232.

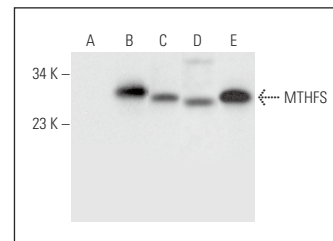
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BPHRP: sc-516102 or m-IgGκ BPHRP (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 BPFITC: sc-516140 or m-IgGκ BPE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



MTHFS (G-8): sc-398056. Western blot analysis of MTHFS expression in Jurkat (A), HeLa (B), HT-1080 (C), M1 (D) and KNRK (E) whole cell lysates and rat liver tissue extract (F).



MTHFS (G-8): sc-398056. Western blot analysis of MTHFS expression in non-transfected 293T: sc-117752 (A), human MTHFS transfected 293T: sc-113997 (B), Jurkat (C), MDA-MB-231 (D) and MDA-MB-435S (E) 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](http://www.scbt.com) for detailed protocols and support products.