

MTHFD1 (6C7): sc-100783

BACKGROUND

Methylenetetrahydrofolate dehydrogenase 1 (MTHFD1) is a 935 amino acid, folate-dependent protein that is responsible for the consecutive inter-conversion of tetrahydrofolate derivatives which drive the synthesis of purine, methionine and thymidylate. The cytosolic MRHFD1 contains three subunits, 5,10-methylenetetrahydrofolate dehydrogenase, 5,10-methylenetetrahydrofolate cyclohydrolase and 10-formyltetrahydrofolate synthetase, each with distinct activities. MTHFD1 functions as a homodimer consisting of two major domains, an N-terminal containing the dehydrogenase and cyclohydrolase activities and a larger synthetase domain in the C-terminus. Mutations in the MTHFD1 gene in pregnant women are associated with an increased risk of giving birth to a child with a neural tube defect, along with a possible risk of decreased embryo survival. MTHFD1 also plays a role in migraine development, since folate metabolism is involved in migraine pathophysiology, mainly in migraine with aura.

REFERENCES

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5. Parle-McDermott, A., et al. 2005. MTHFD1 R653Q polymorphism is a maternal genetic risk factor for severe abruptio placentae. *Am. J. Med. Genet. A* 132A: 365-368.
6. Oterino, A., et al. 2005. Thymidylate synthase promoter tandem repeat and MTHFD1 R653Q polymorphisms modulate the risk for migraine conferred by the MTHFR T677 allele. *Brain Res. Mol. Brain Res.* 139: 163-168.
7. Mills, J.L., et al. 2005. Folate-related genes and omphalocele. *Am. J. Med. Genet. A* 136A: 8-11.
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CHROMOSOMAL LOCATION

Genetic locus: MTHFD1L (human) mapping to 6q25.1; Mthfd1l (mouse) mapping to 10 A1.

SOURCE

MTHFD1 (6C7) is a mouse monoclonal antibody raised against recombinant MTHFD1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MTHFD1L (6C7) is recommended for detection of MTHFD1L of mouse, rat and human 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MTHFD1L siRNA (h): sc-106259, MTHFD1L siRNA (m): sc-149679, MTHFD1L shRNA Plasmid (h): sc-106259-SH, MTHFD1L shRNA Plasmid (m): sc-149679-SH, MTHFD1L shRNA (h) Lentiviral Particles: sc-106259-V and MTHFD1L shRNA (m) Lentiviral Particles: sc-149679-V.

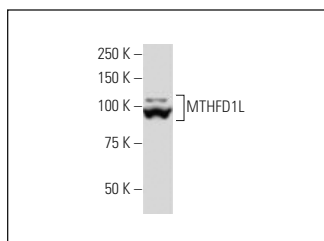
Molecular Weight of MTHFD1: 100 kDa.

Positive Controls: PC-12 cell lysate: sc-2250.

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).

DATA



MTHFD1L (6C7): sc-100783. Western blot analysis of MTHFD1L expression in PC-12 whole cell lysate.

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.