

MTHFR (N-20): sc-17079

BACKGROUND

5,10-methylenetetrahydrofolate reductase (MTHFR) is an essential enzyme in the folate-dependent regulation of methionine and homocysteine concentrations. MTHFR catalyzes the reduction of 5,10-methylenetetrahydrofolate (methyleneTHF) to 5-methyltetrahydrofolate (methylTHF). MethylTHF, the predominant form of circulating folate, is the principle carbon donor for homocysteine methylation, a reaction that yields methionine. Folate prevents neural tube defects, and can lower homocysteine levels, suggesting that MTHFR function is important in preventing cardiovascular disease. Mutations at the MTHFR gene may influence vascular changes, predisposition to leukemia, coronary artery disease and hyperhomocysteinemia.

REFERENCES

- Homburger, A., et al. 2000. Genomic structure and transcript variants of the human methylenetetrahydrofolate reductase gene. *Eur. J. Hum. Genet.* 8: 725-729.
- Lucock, M. 2000. Folic acid: nutritional biochemistry, molecular biology, and role in disease processes. *Mol. Genet. Metab.* 71: 121-138.
- Gaughan, D.J., et al. 2000. The human and mouse methylenetetrahydrofolate reductase (MTHFR) genes: genomic organization, mRNA structure and linkage to the CLCN6 gene. *Gene* 257: 279-289.
- Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 236250. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- LocusLink Report (LocusID: 4524). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: MTHFR (human) mapping to 1p36.22; Mthfr (mouse) mapping to 4 E2.

SOURCE

MTHFR (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MTHFR 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-17079 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.

PROTOCOLS

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

APPLICATIONS

MTHFR (N-20) is recommended for detection of MTHFR of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

MTHFR (N-20) is also recommended for detection of MTHFR in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for MTHFR siRNA (h): sc-43950, MTHFR siRNA (m): sc-149681, MTHFR shRNA Plasmid (h): sc-43950-SH, MTHFR shRNA Plasmid (m): sc-149681-SH, MTHFR shRNA (h) Lentiviral Particles: sc-43950-V and MTHFR shRNA (m) Lentiviral Particles: sc-149681-V.

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) 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.

SELECT PRODUCT CITATIONS

- Scambi, C., et al. 2009. Preliminary evidence for cell membrane amelioration in children with cystic fibrosis by 5-MTHF and vitamin B12 supplementation: a single arm trial. *PLoS ONE* 4: e4782.
- Cherukad, J., et al. 2012. Spatial and temporal expression of folate-related transporters and metabolic enzymes during mouse placental development. *Placenta* 33: 440-448.

RESEARCH USE

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


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Try **MTHFR (5D3F3): sc-517229**, our highly recommended monoclonal alternative to MTHFR (N-20).