

BHMT (m2): 293T Lysate: sc-118805

BACKGROUND

Betaine-homocysteine methyltransferase (BHMT) is a zinc-dependent cytosolic protein that catalyzes the conversion of betaine and homocysteine to dimethylglycine and methionine, respectively. BHMT is highly expressed in rat liver, and its expression is regulated by dietary methionine and choline. In humans, S-adenosylmethionine (SAM) downregulates BHMT expression by inducing NFκB, which acts as a repressor for the BHMT gene. Lowered BHMT levels can lead to ER (endoplasmic reticulum) stress. Mutations in the gene encoding for BHMT may lead to hyperhomocysteinemia, a medical condition characterized by abnormally large amounts of homocysteine in the blood which may be a risk factor for cardiovascular and cerebrovascular diseases.

REFERENCES

1. Park, E.I., et al. 1999. Interaction between dietary methionine and methyl donor intake on rat liver betaine-homocysteine methyltransferase gene expression and organization of the human gene. *J. Biol. Chem.* 274: 7816-7824.
2. Garrow, T.A. 2002. Random mutagenesis of the zinc-binding motif of betaine-homocysteine methyltransferase reveals that Gly 214 is essential. *Arch. Biochem. Biophys.* 399: 73-80.
3. Evans, J.C., et al. 2002. Betaine-homocysteine methyltransferase: zinc in a distorted barrel. *Structure* 10: 1159-1171.
4. Forestier, M., et al. 2003. Betaine-homocysteine methyltransferase: gene cloning and expression analysis in rat liver cirrhosis. *Biochim. Biophys. Acta* 1638: 29-34.
5. Weisberg, I.S., et al. 2003. Investigations of a common genetic variant in betaine-homocysteine methyltransferase (BHMT) in coronary artery disease. *Atherosclerosis* 167: 205-214.
6. Lee, M.B., et al. 2004. A nuclear-magnetic-resonance-based assay for betaine-homocysteine methyltransferase activity. *Anal. Biochem.* 330: 199-205.
7. Castro, C., et al. 2004. Dissecting the catalytic mechanism of betaine-homocysteine S-methyltransferase by use of intrinsic tryptophan fluorescence and site-directed mutagenesis. *Biochemistry* 43: 5341-5351.
8. Zhu, H., et al. 2005. Are the betaine-homocysteine methyltransferase (BHMT and BHMT2) genes risk factors for spina bifida and orofacial clefts? *Am. J. Med. Genet. A* 135: 274-277.

CHROMOSOMAL LOCATION

Genetic locus: Bhmt (mouse) mapping to 13 C3.

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.

PRODUCT

BHMT (m2): 293T Lysate represents a lysate of mouse BHMT transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

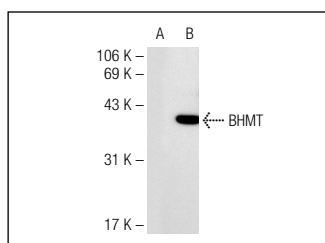
APPLICATIONS

BHMT (m2): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive BHMT 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.

BHMT (3D6): sc-69708 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse BHMT expression in BHMT transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

DATA



BHMT (3D6): sc-69708. Western blot analysis of BHMT expression in non-transfected: sc-117752 (A) and mouse BHMT transfected: sc-118805 (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 for detailed protocols and support products.