

BHMT (O-24): sc-130977

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. and Garrow, T.A. 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.
9. Ou, X., et al. 2006. Inhibition of human betaine-homocysteine methyltransferase expression by S-adenosylmethionine and methylthioadenosine. *Biochem. J.* 401: 87-96.

CHROMOSOMAL LOCATION

Genetic locus: BHMT (human) mapping to 5q14.1; Bhmt (mouse) mapping to 13 C3.

SOURCE

BHMT (O-24) is a Protein A purified rabbit polyclonal antibody raised against synthetic BHMT peptide of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml PBS with < 0.1% sodium azide, 0.1% gelatin and < 0.02% sucrose.

APPLICATIONS

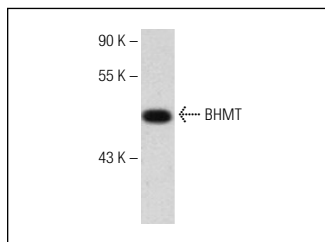
BHMT (O-24) is recommended for detection of BHMT of mouse, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 BHMT siRNA (h): sc-91965, BHMT siRNA (m): sc-141697, BHMT shRNA Plasmid (h): sc-91965-SH, BHMT shRNA Plasmid (m): sc-141697-SH, BHMT shRNA (h) Lentiviral Particles: sc-91965-V and BHMT shRNA (m) Lentiviral Particles: sc-141697-V.

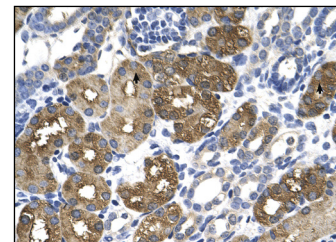
Molecular Weight of BHMT: 45 kDa.

Positive Controls: mouse liver extract: sc-2256, human kidney extract: sc-363764 or mouse kidney extract: sc-2255.

DATA



BHMT (O-24): sc-130977. Western blot analysis of BHMT expression in human fetal liver tissue extract.



BHMT (O-24): sc-130977. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human kidney tissue showing cytoplasmic localization.

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 or our catalog for detailed protocols and support products.

MONOS
Satisfaction
Guaranteed

Try **BHMT (H-7): sc-390299** or **BHMT (3D6): sc-69708**, our highly recommended monoclonal alternatives to BHMT (O-24).