SANTA CRUZ BIOTECHNOLOGY, INC.

BHMT (E-15): sc-162568

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

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

SOURCE

BHMT (E-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of BHMT 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-162568 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

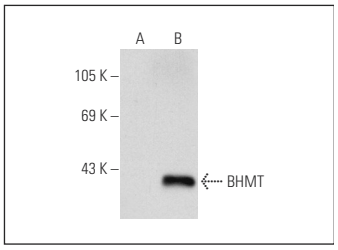
BHMT (E-15) is recommended for detection of BHMT of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500)), 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); non cross-reactive with BHMT2.

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.

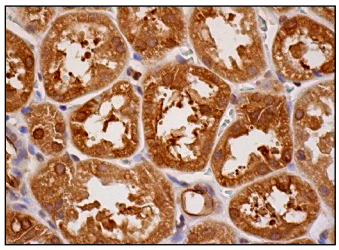
Molecular Weight of BHMT: 45 kDa.

Positive Controls: BHMT (m): 293T Lysate: sc-118804, mouse kidney extract: sc-2255 or mouse liver extract: sc-2256.

DATA



BHMT (E-15): sc-162568. Western blot analysis of BHMT expression in non-transfected: sc-117752 (**A**) and mouse BHMT transfected: sc-118804 (**B**) 293T whole cell lysates.



BHMT (E-15): sc-162568. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli.

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.