SANTA CRUZ BIOTECHNOLOGY, INC.

BHMT (H-7): sc-390299

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) down-regulates 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.

CHROMOSOMAL LOCATION

Genetic locus: BHMT (human) mapping to 5q14.1.

SOURCE

BHMT (H-7) is a mouse monoclonal antibody raised against amino acids 361-406 mapping at the C-terminus of BHMT of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

BHMT (H-7) is available conjugated to agarose (sc-390299 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-390299 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390299 PE), fluorescein (sc-390299 FITC), Alexa Fluor® 488 (sc-390299 AF488), Alexa Fluor® 546 (sc-390299 AF546), Alexa Fluor® 594 (sc-390299 AF594) or Alexa Fluor® 647 (sc-390299 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390299 AF680) or Alexa Fluor® 790 (sc-390299 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

BHMT (H-7) is recommended for detection of BHMT of human origin by Western Blotting (starting dilution 1:100, 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 shRNA Plasmid (h): sc-91965-SH and BHMT shRNA (h) Lentiviral Particles: sc-91965-V.

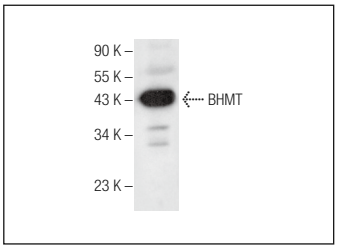
Molecular Weight of BHMT: 45 kDa.

Positive Controls: human kidney extract: sc-363764.

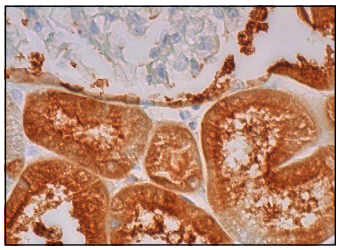
RECOMMENDED SUPPORT REAGENTS

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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



BHMT (H-7): sc-390299. Western blot analysis of BHMT expression in human kidney tissue extract.



BHMT (H-7): sc-390299. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules.

SELECT PRODUCT CITATIONS

1. Xu, Q., et al. 2020. HNF4α regulates sulfur amino acid metabolism and confers sensitivity to methionine restriction in liver cancer. Nat. Commun. 11: 3978.

RESEARCH USE

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