SANTA CRUZ BIOTECHNOLOGY, INC.

BHMT2 siRNA (m): sc-141698

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The Power to Question

BACKGROUND

BHMT2 (betaine-homocysteine S-methyltransferase 2) is a 363 amino acid protein that is expressed in liver and kidney, and at reduced levels in the brain, heart and skeletal muscle. BHMT2 is a zinc metalloenzyme that uses S-methylmethionine (SMM) as a methyl donor for the methylation of homocysteine. BHMT2 activity is strongly inhibited by methionine and more weakly inhibited by S-adenosylmethionine, whereas BHMT methyltransferase activity is only weakly inhibited by methionine and not affected by S-adenosylmethionine. Containing one Hcy-binding domain, BHMT2 contains multiple phosphorylation sites and four conserved N-myristoylation sites. BHMT2 may interact with PRNP. Anomalies in BHMT2 have been implicated in disorders ranging from vascular disease to neural tube birth defects such as spina bifida. BHMT2 exists as two alternatively spliced isoforms and the gene which encodes it maps to chromosome 5q14.1.

REFERENCES

1. Chadwick, L.H., et al. 2000. Betaine-homocysteine methyltransferase-2: cDNA cloning, gene sequence, physical mapping, and expression of the human and mouse genes. Genomics 70: 66-73.
2. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 605932. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. 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.
4. Giusti, B., et al. 2008. Genetic analysis of 56 polymorphisms in 17 genes involved in methionine metabolism in patients with abdominal aortic aneurysm. J. Med. Genet. 45: 721-730.
5. Li, F., et al. 2008. Human betaine-homocysteine methyltransferase (BHMT) and BHMT2: common gene sequence variation and functional characterization. Mol. Genet. Metab. 94: 326-335.
6. Franke, B., et al. 2009. An association study of 45 folate-related genes in spina bifida: involvement of cubilin (CUBN) and tRNA aspartic acid methyltransferase 1 (TRDMT1). Birth Defects Res. Part A Clin. Mol. Teratol. 85: 216-226.

CHROMOSOMAL LOCATION

Genetic locus: Bhmt2 (mouse) mapping to 13 C3.

PRODUCT

BHMT2 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BHMT2 shRNA Plasmid (m): sc-141698-SH and BHMT2 shRNA (m) Lentiviral Particles: sc-141698-V as alternate gene silencing products.

For independent verification of BHMT2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-141698A, sc-141698B and sc-141698C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

BHMT2 siRNA (m) is recommended for the inhibition of BHMT2 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BHMT2 gene expression knockdown using RT-PCR Primer: BHMT2 (m)-PR: sc-141698-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.