SANTA CRUZ BIOTECHNOLOGY, INC.

BDH1 siRNA (m): sc-141681

BACKGROUND

BDH1 (3-hydroxybutyrate dehydrogenase, type 1), also known as BDH or SDR9C1, is a 343 amino acid protein that localizes to the mitochondrial matrix and belongs to the short-chain dehydrogenases/reductases (SDR) family. Existing as a homotetramer, BDH1 functions to catalyze the NAD^+-dependent interconversion of (R)-3-hydroxybutanoate and acetoacetate, a reaction that is allosterically activated by phosphatidylcholine. As both (R)-3-hydroxybutanoate and acetoacetate are two major ketone bodies produced during fatty acid catabolism, BDH1 plays an important role in the metabolic degradation of fatty acids. The gene encoding BDH1 maps to human chromosome 3q29, which houses over 1,100 genes, including a chemokine receptor (CKR) gene cluster and a variety of human cancer-related gene loci.

REFERENCES

1. Marks, A.R., et al. 1992. Molecular cloning and characterization of (R)-3-hydroxybutyrate dehydrogenase from human heart. J. Biol. Chem. 267: 15459-15463.
2. Adami, P., et al. 1993. Monoclonal antibodies for structure-function studies of (R)-3-hydroxybutyrate dehydrogenase, a lipid-dependent membrane-bound enzyme. Biochem. J. 292: 863-872.
3. Langston, H.P., et al. 1996. Purification and characterization of a (R)-3-hydroxybutyrate dehydrogenase deletion mutant. Evidence for C-terminal involvement in enzyme activation by lecithin. Arch. Biochem. Biophys. 327: 45-52.
4. Green, D., et al. 1996. Wild type and mutant human heart (R)-3-hydroxybutyrate dehydrogenase expressed in insect cells. Biochemistry 35: 8158-8165.
5. Online Mendelian Inheritance in Man, OMIM™. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 603063. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Chelius, D., et al. 2000. Phosphatidylcholine activation of human heart (R)-3-hydroxybutyrate dehydrogenase mutants lacking active center sulfhydryls: site-directed mutagenesis of a new recombinant fusion protein. Biochemistry 39: 9687-9697.

CHROMOSOMAL LOCATION

Genetic locus: Bdh1 (mouse) mapping to 16 B2.

PRODUCT

BDH1 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 BDH1 shRNA Plasmid (m): sc-141681-SH and BDH1 shRNA (m) Lentiviral Particles: sc-141681-V as alternate gene silencing products.

For independent verification of BDH1 (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-141681A, sc-141681B and sc-141681C.

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

BDH1 siRNA (m) is recommended for the inhibition of BDH1 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.

GENE EXPRESSION MONITORING

BDH1 (G-5): sc-514413 is recommended as a control antibody for monitoring of BDH1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BDH1 gene expression knockdown using RT-PCR Primer: BDH1 (m)-PR: sc-141681-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.