SANTA CRUZ BIOTECHNOLOGY, INC.

BDH1 (6-RY34): sc-134281

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The Power to Question

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 3, 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.
7. Loeb-Hennard, C. and McIntyre, J.O. 2000. (R)-3-hydroxybutyrate dehydrogenase: selective phosphatidylcholine binding by the C-terminal domain. Biochemistry 39: 11928-11938.
8. Persson, B., et al. 2009. The SDR (short-chain dehydrogenase/reductase and related enzymes) nomenclature initiative. Chem. Biol. Interact. 178: 94-98.

CHROMOSOMAL LOCATION

Genetic locus: BDH1 (human) mapping to 3q29; Bdh1 (mouse) mapping to 16 B2.

SOURCE

BDH1 (6-RY34) is a mouse monoclonal antibody raised against recombinant BDH1 protein of human origin.

PRODUCT

Each vial contains 50 µg IgG_{2a} kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

BDH1 (6-RY34) is recommended for detection of BDH1 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for BDH1 siRNA (h): sc-78262, BDH1 siRNA (m): sc-141681, BDH1 shRNA Plasmid (h): sc-78262-SH, BDH1 shRNA Plasmid (m): sc-141681-SH, BDH1 shRNA (h) Lentiviral Particles: sc-78262-V and BDH1 shRNA (m) Lentiviral Particles: sc-141681-V.

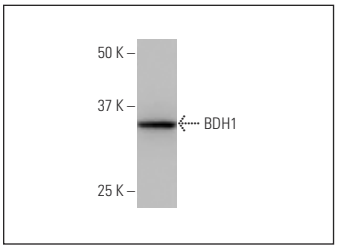
Molecular Weight of BDH1: 38/33 kDa.

Positive Controls: RAW 264.7 whole cell lysate: sc-2211 or mouse heart extract: sc-2254.

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).

DATA



BDH1 (6-RY34): sc-134281. Western blot analysis of BDH1 expression in RAW 264.7 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Peritore, A.F., et al. 2021. PEA/polydatin: anti-inflammatory and antioxidant approach to counteract DNBS-induced colitis. Antioxidants 10: 464.

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.