

BDH1 (G-5): sc-514413

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

- Marks, A.R., et al. 1992. Molecular cloning and characterization of (R)-3-hydroxybutyrate dehydrogenase from human heart. *J. Biol. Chem.* 267: 15459-15463.
- 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.
- 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.

CHROMOSOMAL LOCATION

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

SOURCE

BDH1 (G-5) is a mouse monoclonal antibody raised against amino acids 233-305 mapping near the C-terminus of BDH1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

BDH1 (G-5) is available conjugated to agarose (sc-514413 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514413 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514413 PE), fluorescein (sc-514413 FITC), Alexa Fluor® 488 (sc-514413 AF488), Alexa Fluor® 546 (sc-514413 AF546), Alexa Fluor® 594 (sc-514413 AF594) or Alexa Fluor® 647 (sc-514413 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514413 AF680) or Alexa Fluor® 790 (sc-514413 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

BDH1 (G-5) is recommended for detection of BDH1 of mouse, rat and 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) 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 mature BDH1: 38 kDa.

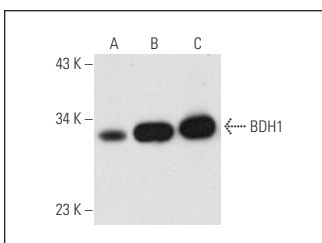
Molecular Weight of BDH1 precursor: 33 kDa.

Positive Controls: human liver extract: sc-363766, human heart extract: sc-363763 or Hep G2 cell lysate: sc-2227.

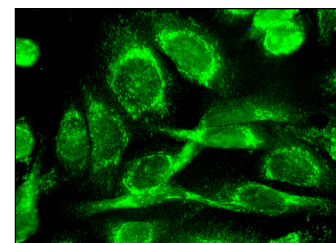
RECOMMENDED SUPPORT REAGENTS

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.

DATA



BDH1 (G-5): sc-514413. Western blot analysis of BDH1 expression in Hep G2 whole cell lysate (A) and human liver (B) and human heart (C) tissue extracts.



BDH1 (G-5): sc-514413. Immunofluorescence staining of formalin-fixed SW480 cells showing mitochondrial localization.

SELECT PRODUCT CITATIONS

- Nasser, S., et al. 2022. Ketogenic diet administration to mice after a high-fat-diet regimen promotes weight loss, glycemic normalization and induces adaptations of ketogenic pathways in liver and kidney. *Mol. Metab.* 65: 101578.

RESEARCH USE

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