SANTA CRUZ BIOTECHNOLOGY, INC.

MDHC (H-6): sc-166879

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cytosolic malate dehydrogenase (MDHC or cMDH) is an important NAD-dependent enzyme involved in glycometabolism that catalyzes the formation of oxaloacetate and NADH from L-malate and NAD. MDHC is highly expressed in brain, heart and skeletal muscle and plays a role in aerobic energy production for muscle contraction, transmission of neuronal signals, absorption/resorption pathways, collagen-supporting functions, dead cell phagocytosis, as well as pathways involved in gas exchange and cell division. Furthermore, MDHC is a regulatory subunit of the nucleic acid-conducting channel (NACh). MDHC functions as a homodimer and is highly conserved in plants, animals and bacteria. The activity of MDHC is controlled by the sesquiterpenoid juvenile hormone (JH) and the steroid hormone ecdysone.

CHROMOSOMAL LOCATION

Genetic locus: MDH1 (human) mapping to 2p15; Mdh1 (mouse) mapping to 11 A3.1.

SOURCE

MDHC (H-6) is a mouse monoclonal antibody raised against amino acids 255-320 mapping near the C-terminus of MDHC 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.

MDHC (H-6) is available conjugated to agarose (sc-166879 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-166879 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166879 PE), fluorescein (sc-166879 FITC), Alexa Fluor® 488 (sc-166879 AF488), Alexa Fluor® 546 (sc-166879 AF546), Alexa Fluor® 594 (sc-166879 AF594) or Alexa Fluor® 647 (sc-166879 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166879 AF680) or Alexa Fluor® 790 (sc-166879 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

MDHC (H-6) is recommended for detection of MDHC (malate dehydrogenase, cytoplasmic) 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), 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 MDHC siRNA (h): sc-61012, MDHC siRNA (m): sc-61013, MDHC shRNA Plasmid (h): sc-61012-SH, MDHC shRNA Plasmid (m): sc-61013-SH, MDHC shRNA (h) Lentiviral Particles: sc-61012-V and MDHC shRNA (m) Lentiviral Particles: sc-61013-V.

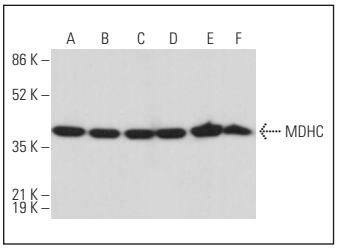
Molecular Weight of MDHC: 36 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or IMR-32 cell lysate: sc-2409.

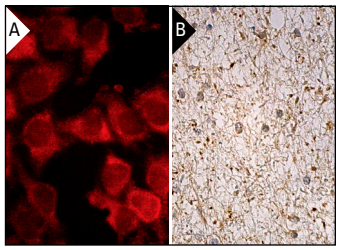
RECOMMENDED SUPPORT REAGENTS

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



MDHC (H-6): sc-166879. Western blot analysis of MDHC expression in HeLa (**A**), K-562 (**B**), IMR-32 (**C**), EOC 20 (**D**), PC-12 (**E**) and RAW 264.7 (**F**) whole cell lysates.



MDHC (H-6): sc-166879. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human brain tissue showing neuropil staining (**B**).

SELECT PRODUCT CITATIONS

1. Cho, J.H., et al. 2013. Identification of the novel substrates for caspase-6 in apoptosis using proteomic approaches. BMB Rep. 46: 588-593.
2. Broeks, M.H., et al. 2019. MDH1 deficiency is a metabolic disorder of the malate-aspartate shuttle associated with early onset severe encephalopathy. Hum. Genet. 138: 1247-1257.
3. Ren, J., et al. 2020. Shenqi Yizhi granules protect hippocampus of AD transgenic mice by modulating on multiple pathogenesis processes. J. Ethnopharmacol. 263: 112869.
4. Wang, Y., et al. 2022. Saturation of the mitochondrial NADH shuttles drives aerobic glycolysis in proliferating cells. Mol. Cell 82: 3270-3283.e9.
5. Gill, G.S., et al. 2022. Multienzyme activity profiling for evaluation of cell-to-cell variability of metabolic state. FASEB Bioadv. 4: 709-723.

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.