SANTA CRUZ BIOTECHNOLOGY, INC.

MDHC (28): sc-101516

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.

REFERENCES

1. Drmota, T., et al. 1997. Isolation and characterization of cytosolic malate dehydrogenase from *Trichomonas vaginalis*. Folia Parasitol. 44: 103-108.
2. Farkas, R. and Knopp, J. 1998. Genetic and hormonal control of cytosolic malate dehydrogenase activity in *Drosophila melanogaster.* Gen. Physiol. Biophys. 17: 37-50.
3. Fahien, L.A., et al. 1999. Ability of cytosolic malate dehydrogenase and lactate dehydrogenase to increase the ratio of NADPH to NADH oxidation by cytosolic glycerol-3-phosphate dehydrogenase. Arch. Biochem. Biophys. 364: 185-194.
4. Hanss, B., et al. 2002. Cytos channel. Proc. Nat. Acad. Sci. USA 99: 1707-1712.
5. Merrit, T.J., et al. 2003. Evolution of the vertebrate cytosolic malate dehydrogenase gene family: duplication and divergence in actinopterygian fish. J. Mol. Evol. 56: 265-276.
6. Krzakowa, M., et al. 2005. Genetic variability among beech *(Fagus sylvatica L.)* populations from the sudety mountains, in respect of peroxidase and malate dehydrogenase loci. J. Appl. Genet. 46: 271-277.
7. Mythili, Y., et al. 2005. dl-α-lipoic acid ameliorates cyclophosphamide induced cardiac mitochondrial injury. Toxicology 215: 108-114.
8. Senthilnathan, P., et al. 2006. Modulation of TCA cycle enzymes and electron transport chain systems in experimental lung cancer. Life Sci. 78: 1010-1014.

CHROMOSOMAL LOCATION

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

SOURCE

MDHC (28) is a mouse monoclonal antibody raised against recombinant 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.

APPLICATIONS

MDHC (28) is recommended for detection of MDHC (malate dehydrogenase, cytoplasmic) 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 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.

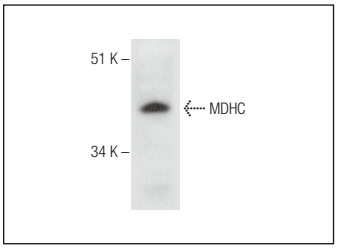
Molecular Weight of MDHC: 36 kDa.

Positive Controls: mouse brain extract: sc-2253, Jurkat whole cell lysate: sc-2204 or F9 cell lysate: sc-2245.

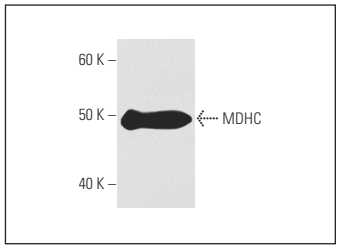
RECOMMENDED SUPPORT REAGENTS

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



MDHC (28): sc-101516. Western blot analysis of MDHC expression in mouse brain tissue extract.



MDHC (28): sc-101516. Western blot analysis of human recombinant MDHC.

SELECT PRODUCT CITATIONS

1. Shi, T., et al. 2013. Novel proteins associated with human dilated cardiomyopathy: selective reduction in α_{1A}-adrenergic receptors and increased desensitization proteins. J. Recept. Signal Transduct. Res. 33: 96-106.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.