

# MDHC (28): sc-101516

## 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- $\alpha$ -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  $\mu$ g IgG<sub>1</sub> 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  $\mu$ g per 100-500  $\mu$ g 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.

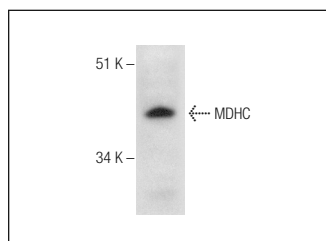
Molecular Weight of MDHC: 36 kDa.

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

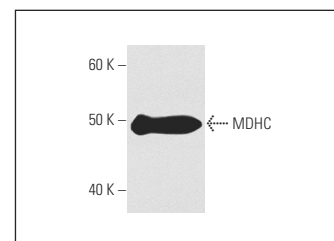
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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  $\alpha_{1A}$ -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](http://www.scbt.com) for detailed protocols and support products.