

MDH2 (1G12): sc-293474

BACKGROUND

MDH2 (malate dehydrogenase, NAD mitochondrial), also known as MDH, MOR1 or M-MDH, is a 338 amino acid that belongs to the LDH/MDH superfamily. MDH2 localizes to the mitochondria and may play a critical role in the malate-aspartate shuttle that operates in the metabolic coordination between cytosol and mitochondria. MDH2 utilizes the NAD/NADH cofactor system in the citric acid cycle to catalyze the reversible oxidation of malate to oxaloacetate. Oxaloacetate is involved in many important metabolic pathways including amino acid synthesis, gluconeogenesis and facilitation of the exchange of metabolites between cytoplasm and subcellular organelles.

REFERENCES

1. Breznicka, E.A., et al. 1983. Tissue origin of MDH isozymes in blood serum of rats exposed to alkylmercurials. *J. Appl. Toxicol.* 3: 180-184.
2. Wisniewska, W., et al. 1985. Malate dehydrogenase and its isoenzymes in the peripheral blood leukocytes in progressive muscular dystrophy of the Duchenne type. *Neurol. Neurochir. Pol.* 19: 318-322.
3. Minard, K.I., et al. 1994. Glucose-induced phosphorylation of the MDH2 isozyme of malate dehydrogenase in *Saccharomyces cerevisiae*. *Arch. Biochem. Biophys.* 315: 302-309.
4. Goward, C.R., et al. 1994. Malate dehydrogenase: a model for structure, evolution, and catalysis. *Protein Sci.* 3: 1883-1888.

CHROMOSOMAL LOCATION

Genetic locus: MDH2 (human) mapping to 7q11.23; Mdh2 (mouse) mapping to 5 G2.

SOURCE

MDH2 (1G12) is a mouse monoclonal antibody raised against amino acids 134-246 representing partial length MDH2 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MDH2 (1G12) is recommended for detection of MDH2 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 MDH2 siRNA (h): sc-89622, MDH2 siRNA (m): sc-149339, MDH2 shRNA Plasmid (h): sc-89622-SH, MDH2 shRNA Plasmid (m): sc-149339-SH, MDH2 shRNA (h) Lentiviral Particles: sc-89622-V and MDH2 shRNA (m) Lentiviral Particles: sc-149339-V.

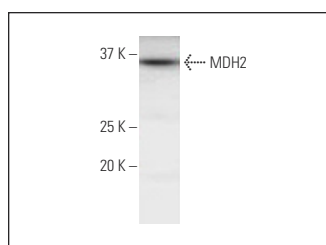
Molecular Weight of MDH2: 36 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409.

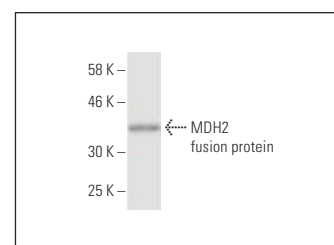
RECOMMENDED SUPPORT REAGENTS

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).

DATA



MDH2 (1G12): sc-293474. Western blot analysis of MDH2 expression in IMR-32 whole cell lysate.



MDH2 (1G12): sc-293474. Western blot analysis of human recombinant MDH2 fusion protein.

SELECT PRODUCT CITATIONS

1. Liu, Y., et al. 2019. Mitochondrial carrier protein overloading and misfolding induce aggregates and proteostatic adaptations in the cytosol. *Mol. Biol. Cell* 30: 1272-1284.
2. Lepczynski, A., et al. 2021. Effects of three-month feeding high fat diets with different fatty acid composition on myocardial proteome in mice. *Nutrients* 13: 330.
3. Chen, J., et al. 2021. Microglial Inc-U90926 facilitates neutrophil infiltration in ischemic stroke via MDH2/CXCL2 axis. *Mol. Ther.* 29: 2873-2885.
4. Moreno-Sánchez, R., et al. 2021. Regulatory role of acetylation on enzyme activity and fluxes of energy metabolism pathways. *Biochim. Biophys. Acta Gen. Subj.* 1865: 130021.
5. Karra, A.G., et al. 2023. Increased expression of the mitochondrial glucocorticoid receptor enhances tumor aggressiveness in a mouse xenograft model. *Int. J. Mol. Sci.* 24: 3740.

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.