

DHODH (L-25): sc-133510

BACKGROUND

DHODH (dihydroorotate dehydrogenase), also known as DHodehase, is a 395 amino acid mitochondrial protein located on the outer surface of the inner mitochondrial membrane. It catalyzes the fourth enzymatic step in *de novo* pyrimidine biosynthesis. *De novo* pyrimidine synthesis is a critical metabolic pathway for nucleic acid synthesis and is a target for various cancer chemotherapy agents. Additionally, DHODH is functionally connected to the respiratory chain, delivering electrons to ubiquinone. DHODH contains a bipartite signal at the N-terminus that regulates passage into the mitochondrial inner membrane. The inhibition of COX (cytochrome c oxidase) by nitric oxide (NO) indirectly inhibits DHODH activity. The inhibition of DHODH has an immunosuppressive and an antiproliferative effect on diseases such as rheumatoid arthritis.

REFERENCES

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2. Copeland, R.A., et al. 1995. Recombinant human dihydroorotate dehydrogenase: expression, purification, and characterization of a catalytically functional truncated enzyme. *Arch. Biochem. Biophys.* 323: 79-86.
3. Knecht, W., et al. 1996. Functional expression of a fragment of human dihydroorotate dehydrogenase by means of the baculovirus expression vector system, and kinetic investigation of the purified recombinant enzyme. *Eur. J. Biochem.* 240: 292-301.
4. Beuneu, C., et al. 2000. Indirect inhibition of mitochondrial dihydroorotate dehydrogenase activity by nitric oxide. *Free Radic. Biol. Med.* 28: 1206-1213.
5. Dietz, C., et al. 2000. Immunocytochemical detection of mitochondrial dihydroorotate dehydrogenase in human spermatozoa. *Int. J. Androl.* 23: 294-299.
6. Rawls, J., et al. 2000. Requirements for the mitochondrial import and localization of dihydroorotate dehydrogenase. *Eur. J. Biochem.* 267: 2079-2087.
7. Small, Y.A., et al. 2006. Hydrogen bonding pathways in human dihydroorotate dehydrogenase. *J. Phys. Chem. B* 110: 19704-19710.
8. Baumgartner, R., et al. 2006. Dual binding mode of a novel series of DHODH inhibitors. *J. Med. Chem.* 49: 1239-1247.
9. Zameitat, E., et al. 2007. Functional expression of human dihydroorotate dehydrogenase (DHODH) in pyr4 mutants of *Ustilago maydis* allows target validation of DHODH inhibitors *in vivo*. *Appl. Environ. Microbiol.* 73: 3371-3379.

STORAGE

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

CHROMOSOMAL LOCATION

Genetic locus: DHODH (human) mapping to 16q22.3; Dhodh (mouse) mapping to 8 D3.

SOURCE

DHODH (L-25) is an affinity purified rabbit polyclonal antibody raised against synthetic DHODH peptide of human origin.

PRODUCT

Each vial contains 50 µg IgG in 500 µl PBS with < 0.1% sodium azide, 0.1% gelatin and < 0.02% sucrose.

APPLICATIONS

DHODH (L-25) is recommended for detection of DHODH 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 DHODH siRNA (h): sc-77141, DHODH siRNA (m): sc-77142, DHODH shRNA Plasmid (h): sc-77141-SH, DHODH shRNA Plasmid (m): sc-77142-SH, DHODH shRNA (h) Lentiviral Particles: sc-77141-V and DHODH shRNA (m) Lentiviral Particles: sc-77142-V.

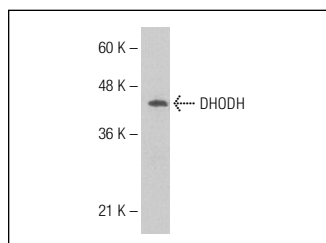
Molecular Weight of DHODH: 43 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206 or Jurkat whole cell lysate: sc-2204.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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



DHODH (L-25): sc-133510. Western blot analysis of DHODH expression in Jurkat whole cell lysate.

RESEARCH USE

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