

DHODH (D-6): sc-166377

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 chemo-therapy 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

- Barnes, T., et al. 1993. Regional mapping of the gene encoding dihydroorotate dehydrogenase, an enzyme involved in UMP synthesis, electron transport, and superoxide generation, to human chromosome region 16q22.2. *Somat. Cell Mol. Genet.* 19: 405-411.
- 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.
- 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.
- Beuneu, C., et al. 2000. Indirect inhibition of mitochondrial dihydroorotate dehydrogenase activity by nitric oxide. *Free Radic. Biol. Med.* 28: 1206-1213.
- Dietz, C., et al. 2000. Immunocytochemical detection of mitochondrial dihydroorotate dehydrogenase in human spermatozoa. *Int. J. Androl.* 23: 294-299.
- Rawls, J., et al. 2000. Requirements for the mitochondrial import and localization of dihydroorotate dehydrogenase. *Eur. J. Biochem.* 267: 2079-2087.

CHROMOSOMAL LOCATION

Genetic locus: DHODH (human) mapping to 16q22.2; Dhodh (mouse) mapping to 8 D3.

SOURCE

DHODH (D-6) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of DHODH of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

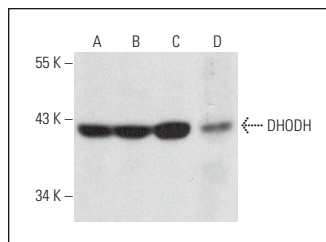
DHODH (D-6) is recommended for detection of DHODH of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) 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.

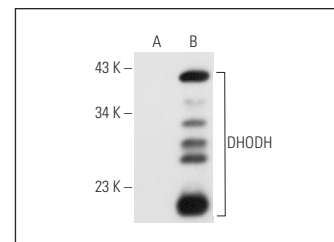
Molecular Weight of DHODH: 43 kDa.

Positive Controls: DHODH (h): 293T Lysate: sc-116990, Jurkat whole cell lysate: sc-2204 or Hep G2 cell lysate: sc-2227.

DATA



DHODH (D-6): sc-166377. Western blot analysis of DHODH expression in Jurkat (A), MCF7 (B), Hep G2 (C) and C6 (D) whole cell lysates.



DHODH (D-6): sc-166377. Western blot analysis of DHODH expression in non-transfected: sc-117752 (A) and human DHODH transfected: sc-116990 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Zhu, S., et al. 2013. Leflunomide reduces proliferation and induces apoptosis in neuroblastoma cells *in vitro* and *in vivo*. *PLoS ONE* 8: e71555.
- Ren, A., et al. 2017. Leflunomide inhibits proliferation and tumorigenesis of oral squamous cell carcinoma. *Mol. Med. Rep.* 16: 9125-9130.
- Gaidano, V., et al. 2021. The synergism between DHODH inhibitors and dipyrindamole leads to metabolic lethality in acute myeloid leukemia. *Cancers* 13: 1003.

STORAGE

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

PROTOCOLS

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