

DHODH (E-8): sc-166348

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.

CHROMOSOMAL LOCATION

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

SOURCE

DHODH (E-8) 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 IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DHODH (E-8) is available conjugated to agarose (sc-166348 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166348 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166348 PE), fluorescein (sc-166348 FITC), Alexa Fluor® 488 (sc-166348 AF488), Alexa Fluor® 546 (sc-166348 AF546), Alexa Fluor® 594 (sc-166348 AF594) or Alexa Fluor® 647 (sc-166348 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166348 AF680) or Alexa Fluor® 790 (sc-166348 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

DHODH (E-8) 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.

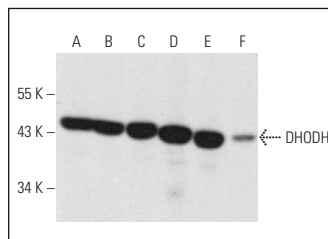
Molecular Weight of DHODH: 43 kDa.

Positive Controls: C3H/10T1/2 cell lysate: sc-3801, Jurkat whole cell lysate: sc-2204 or Hep G2 cell lysate: sc-2227.

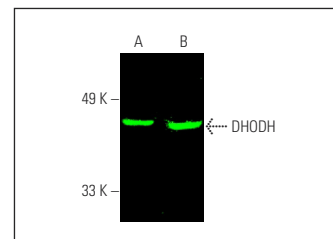
STORAGE

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

DATA



DHODH (E-8): sc-166348. Western blot analysis of DHODH expression in Jurkat (A), MCF7 (B), Hep G2 (C), C3H/10T1/2 (D), 3T3-L1 (E) and C6 (F) whole cell lysates.



DHODH (E-8): sc-166348. Near-infrared western blot analysis of DHODH expression in Hep G2 (A) and NIH/3T3 (B) whole cell lysates. Blocked with UltraCruz®. Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

SELECT PRODUCT CITATIONS

1. Arnould, S., et al. 2017. Checkpoint kinase 1 inhibition sensitises transformed cells to dihydroorotate dehydrogenase inhibition. *Oncotarget* 8: 95206-95222.
2. Bajzikova, M., et al. 2019. Reactivation of dihydroorotate dehydrogenase-driven pyrimidine biosynthesis restores tumor growth of respiration-deficient cancer cells. *Cell Metab.* 29: 399-416.e10.
3. Hubackova, S., et al. 2020. Replication and ribosomal stress induced by targeting pyrimidine synthesis and cellular checkpoints suppress p53-deficient tumors. *Cell Death Dis.* 11: 110.
4. Yu, Y., et al. 2021. Therapeutic targeting of both dihydroorotate dehydrogenase and nucleoside transport in MYCN-amplified neuroblastoma. *Cell Death Dis.* 12: 821.
5. Kawamura, T., et al. 2022. VGLL3 increases the dependency of cancer cells on *de novo* nucleotide synthesis through GART expression. *J. Cell. Biochem.* 123: 1064-1076.
6. Mishima, E., et al. 2023. DHODH inhibitors sensitize to ferroptosis by FSP1 inhibition. *Nature* 619: E9-E18.
7. Li, Y., et al. 2024. 7-Dehydrocholesterol dictates ferroptosis sensitivity. *Nature* 626: 411-418.
8. Yen, H.C., et al. 2024. Alterations in coenzyme Q₁₀ status in a cybrid line harboring the 3243A>G mutation of mitochondrial DNA is associated with abnormal mitochondrial bioenergetics and dysregulated mitochondrial biogenesis. *Biochim. Biophys. Acta Bioenerg.* 1865: 149492.
9. Mirzapiozova, T., et al. 2024. Teriflunomide/leflunomide synergize with chemotherapeutics by decreasing mitochondrial fragmentation via DRP1 in SCLC. *iScience* 27: 110132.

RESEARCH USE

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