

DLD (G-2): sc-365977

BACKGROUND

DLD (dihydrolipoyl dehydrogenase or dihydrolipoamide dehydrogenase), also known as GCSL (glycine cleavage system L protein), PHE3, DLDH or LAD, is a member of the class I pyridine nucleotide-disulfide oxidoreductase family. DLD is a flavin-dependent oxidoreductase and functions as a component of the α -keto acid dehydrogenase, the pyruvate dehydrogenase, the α -ketoglutarate dehydrogenase, the branched-chain α -keto acid dehydrogenase and as the L protein in the mitochondrial glycine cleavage system. DLD localizes to the mitochondrial matrix and exists as a monomer, homodimer or tetramer that is required for energy metabolism in all eukaryotes. More specifically, DLD generates NADH and lipoic acid from dihydrolipoic acid and NAD⁺. The DLD homodimer catalyzes the opposite reaction. Mutations in the gene encoding DLD can result in MSUD (maple syrup urine disease) and congenital infantile lactic acidosis.

CHROMOSOMAL LOCATION

Genetic locus: DLD (human) mapping to 7q31.1; Dld (mouse) mapping to 12 A3.

SOURCE

DLD (G-2) is a mouse monoclonal antibody raised against amino acids 356-509 mapping at the C-terminus of DLD of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DLD (G-2) is available conjugated to agarose (sc-365977 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365977 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365977 PE), fluorescein (sc-365977 FITC), Alexa Fluor® 488 (sc-365977 AF488), Alexa Fluor® 546 (sc-365977 AF546), Alexa Fluor® 594 (sc-365977 AF594) or Alexa Fluor® 647 (sc-365977 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365977 AF680) or Alexa Fluor® 790 (sc-365977 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

DLD (G-2) is recommended for detection of DLD of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

DLD (G-2) is also recommended for detection of DLD in additional species, including equine, canine and bovine.

Suitable for use as control antibody for DLD siRNA (h): sc-62218, DLD siRNA (m): sc-62219, DLD shRNA Plasmid (h): sc-62218-SH, DLD shRNA Plasmid (m): sc-62219-SH, DLD shRNA (h) Lentiviral Particles: sc-62218-V and DLD shRNA (m) Lentiviral Particles: sc-62219-V.

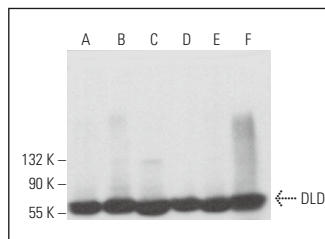
Molecular Weight of DLD monomer: 50 kDa.

Molecular Weight of DLD homodimer: 100 kDa.

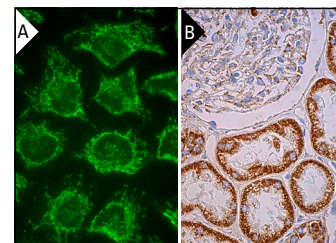
STORAGE

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

DATA



DLD (G-2): sc-365977. Western blot analysis of DLD expression in Daudi (A), PC-3 (B), NIH/3T3 (C), Sol8 (D), L6 (E) and OVCAR-3 (F) whole cell lysates.



DLD (G-2): sc-365977. Immunofluorescence staining of methanol-fixed HeLa cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules (B).

SELECT PRODUCT CITATIONS

- Ilic, N., et al. 2017. PIK3CA mutant tumors depend on oxoglutarate dehydrogenase. *Proc. Natl. Acad. Sci. USA* 114: E3434-E3443.
- McArthur, K., et al. 2018. BAK/BAX macropores facilitate mitochondrial herniation and mtDNA efflux during apoptosis. *Science* 359: eaao6047.
- Jin, F., et al. 2019. HIF-1 α -induced miR-23a~27a~24 cluster promotes colorectal cancer progression via reprogramming metabolism. *Cancer Lett.* 440-441: 211-222.
- Leandro, J., et al. 2020. DHTKD1 and OGDH display substrate overlap in cultured cells and form a hybrid 2-oxo acid dehydrogenase complex *in vivo*. *Hum. Mol. Genet.* 29: 1168-1179.
- Lee, J., et al. 2020. The plasticity of the pyruvate dehydrogenase complex confers a labile structure that is associated with its catalytic activity. *PLoS ONE* 15: e0243489.
- Kliza, K.W., et al. 2021. Reading ADP-ribosylation signaling using chemical biology and interaction proteomics. *Mol. Cell* 81: 4552-4567.e8.
- Filipović, D., et al. 2023. Chronic fluoxetine treatment in socially-isolated rats modulates the prefrontal cortex synaptoproteome. *J. Proteomics* 282: 104925.
- Joshi, P.R., et al. 2023. Lipoylation is dependent on the ferredoxin FDX1 and dispensable under hypoxia in human cells. *J. Biol. Chem.* 299: 105075.
- Russo, M., et al. 2024. Acetyl-CoA production by mediator-bound 2-keto-acid dehydrogenases boosts *de novo* histone acetylation and is regulated by nitric oxide. *Mol. Cell* 84: 967-980.e10.

RESEARCH USE

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

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