

ALDH6A1 (C-9): sc-271582

BACKGROUND

Aldehyde dehydrogenases (ALDHs) mediate the NADP⁺-dependent oxidation of aldehydes into acids and play an important role in the detoxification of alcohol-derived acetaldehyde, as well as in lipid peroxidation and in the metabolism of corticosteroids, biogenic amines and neurotransmitters. ALDH6A1 (aldehyde dehydrogenase family six member A1), also known as MMSDH or MMSADHA, is a 535 amino acid mitochondrial protein that belongs to the aldehyde dehydrogenase family. Considered a mitochondrial methylmalonate semialdehyde dehydrogenase, ALDH6A1 catalyzes the irreversible oxidative decarboxylation of malonate and methylmalonate semialdehydes to acetyl- and propionyl-CoA. It is suggested that ALDH6A1 plays a role in the valine and pyrimidine catabolic pathways.

REFERENCES

- Goodwin, G.W., et al. 1989. Purification and characterization of methylmalonate-semialdehyde dehydrogenase from rat liver. Identity to malonate-semialdehyde dehydrogenase. *J. Biol. Chem.* 264: 14965-14971.
- Deichaite, I., et al. 1993. Novel use of an iodo-myristyl-CoA analog identifies a semialdehyde dehydrogenase in bovine liver. *J. Biol. Chem.* 268: 13738-13747.

CHROMOSOMAL LOCATION

Genetic locus: ALDH6A1 (human) mapping to 14q24.3; Aldh6a1 (mouse) mapping to 12 D1.

SOURCE

ALDH6A1 (C-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 49-75 near the N-terminus of ALDH6A1 of human origin.

PRODUCT

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

ALDH6A1 (C-9) is available conjugated to agarose (sc-271582 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271582 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271582 PE), fluorescein (sc-271582 FITC), Alexa Fluor[®] 488 (sc-271582 AF488), Alexa Fluor[®] 546 (sc-271582 AF546), Alexa Fluor[®] 594 (sc-271582 AF594) or Alexa Fluor[®] 647 (sc-271582 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-271582 AF680) or Alexa Fluor[®] 790 (sc-271582 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271582 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

ALDH6A1 (C-9) is recommended for detection of ALDH6A1 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), 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).

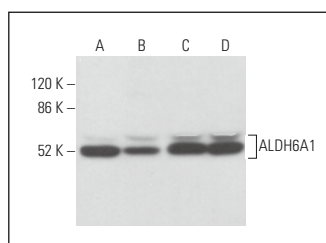
ALDH6A1 (C-9) is also recommended for detection of ALDH6A1 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for ALDH6A1 siRNA (h): sc-92361, ALDH6A1 siRNA (m): sc-141004, ALDH6A1 shRNA Plasmid (h): sc-92361-SH, ALDH6A1 shRNA Plasmid (m): sc-141004-SH, ALDH6A1 shRNA (h) Lentiviral Particles: sc-92361-V and ALDH6A1 shRNA (m) Lentiviral Particles: sc-141004-V.

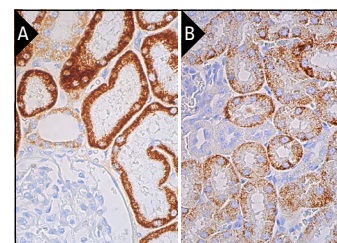
Molecular Weight of ALDH6A1: 58 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, NIH/3T3 whole cell lysate: sc-2210 or MDA-MB-231 cell lysate: sc-2232.

DATA



ALDH6A1 (C-9): sc-271582. Western blot analysis of ALDH6A1 expression in Jurkat (A), MDA-MB-231 (B), Caco-2 (C) and NIH/3T3 (D) whole cell lysates.



ALDH6A1 (C-9): sc-271582. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney (A) and mouse kidney (B) tissue showing cytoplasmic staining of cells in tubules. Blocked with 0.25X UltraCruz[®] Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ: BP-B: sc-516142 and ImmunoCruz[®] ABC Kit: sc-516216.

SELECT PRODUCT CITATIONS

- Poli, G., et al. 2015. 2D-DIGE proteomic analysis identifies new potential therapeutic targets for adrenocortical carcinoma. *Oncotarget* 6: 5695-5706.
- Etienne, J., et al. 2020. Aldehyde dehydrogenases contribute to skeletal muscle homeostasis in healthy, aging, and Duchenne muscular dystrophy patients. *J. Cachexia Sarcopenia Muscle* 11: 1047-1069.
- Shin, H., et al. 2020. Identification of ALDH6A1 as a potential molecular signature in hepatocellular carcinoma via quantitative profiling of the mitochondrial proteome. *J. Proteome Res.* 19: 1684-1695.
- Choi, S., et al. 2021. Suppression of Foxo3-Gatm by miR-132-3p accelerates cyst formation by up-regulating ROS in autosomal dominant polycystic kidney disease. *Biomol. Ther.* 29: 311-320.

RESEARCH USE

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