SANTA CRUZ BIOTECHNOLOGY, INC.

ALDH5A1 (D-3): sc-390754

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. ALDH5A1 (aldehyde dehydrogenase 5 family, member A1), also known as SSDH or SSADH, is a 535 amino acid protein that localizes to the mitochondria and belongs to the aldehyde dehydrogenase family. Expressed in a variety of tissues, including liver, heart, lung, brain, kidney and placenta, ALDH5A1 is required for γ-aminobutyric acid (GABA) recycling from the synaptic cleft. Mutations of ALDH5A1 leads to succinate semialdehyde dehydrogenase deficiency (SSADH deficiency) that is characterized by severe ataxia and by mildly retarded psychomotor development.

CHROMOSOMAL LOCATION

Genetic locus: ALDH5A1 (human) mapping to 6p22.3; Aldh5a1 (mouse) mapping to 13 A3.1.

SOURCE

ALDH5A1 (D-3) is a mouse monoclonal antibody raised against amino acids 1-226 mapping at the N-terminus of ALDH5A1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ALDH5A1 (D-3) is available conjugated to agarose (sc-390754 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-390754 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390754 PE), fluorescein (sc-390754 FITC), Alexa Fluor® 488 (sc-390754 AF488), Alexa Fluor® 546 (sc-390754 AF546), Alexa Fluor® 594 (sc-390754 AF594) or Alexa Fluor® 647 (sc-390754 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390754 AF680) or Alexa Fluor® 790 (sc-390754 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

ALDH5A1 (D-3) is recommended for detection of ALDH5A1 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).

Suitable for use as control antibody for ALDH5A1 siRNA (h): sc-72480, ALDH5A1 siRNA (m): sc-72481, ALDH5A1 shRNA Plasmid (h): sc-72480-SH, ALDH5A1 shRNA Plasmid (m): sc-72481-SH, ALDH5A1 shRNA (h) Lentiviral Particles: sc-72480-V and ALDH5A1 shRNA (m) Lentiviral Particles: sc-72481-V.

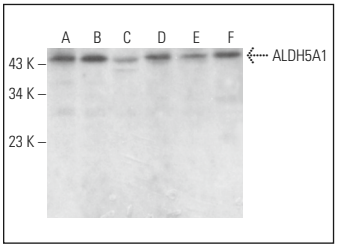
Molecular Weight of ALDH5A1: 54 kDa.

Positive Controls: WEHI-231 whole cell lysate: sc-2213, F9 cell lysate: sc-2245 or EOC 20 whole cell lysate: sc-364187.

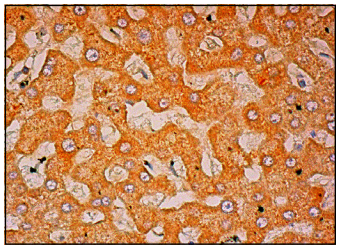
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



ALDH5A1 (D-3): sc-390754. Western blot analysis of ALDH5A1 expression in WEHI-231 (**A**), F9 (**B**), EOC 20 (**C**), c4 (**D**), Sol8 (**E**) and BW5147 (**F**) whole cell lysates.



ALDH5A1 (D-3): sc-390754. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes.

SELECT PRODUCT CITATIONS

1. Menduti, G., et al. 2020. SSADH variants increase susceptibility of U87 cells to mitochondrial pro-oxidant insult. Int. J. Mol. Sci. 21: 4374.
2. Liang, D., et al. 2024. A GABAergic system in atrioventricular node pacemaker cells controls electrical conduction between the atria and ventricles. Cell Res. 34: 556-571.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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