SANTA CRUZ BIOTECHNOLOGY, INC.

ALDH3A1 (H-76): sc-67310

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The Power to Question

BACKGROUND

Aldehyde dehydrogenases (ALDHs) mediate $NADP^+$-dependent oxidation of aldehydes into acids, the metabolism of corticosteroids, biogenic amines and neurotransmitters, and lipid peroxidation. ALDH1A1, also designated retinal dehydrogenase 1 (RalDH1 or RALDH1), aldehyde dehydrogenase family 1 member A1, aldehyde dehydrogenase cytosolic, ALDHII, ALDH-E1 or ALDH E1, is a retinal dehydrogenase that participates in the biosynthesis of retinoic acid (RA). There are two major liver isoforms of ALDH1 that can localize to cytosolic or mitochondrial space. The ALDH1A2 (RALDH2, RALDH2-T) gene produces three different transcripts and also catalyzes the synthesis of RA from retinaldehyde. ALDH1A3 (ALDH6, RALDH3, ALDH1A6) is a 37 kb gene that consists of 13 exons and produces a major transcript of approximately 3.5 kb most abundant in salivary gland, stomach and kidney. ALDH3A1 (stomach type, ALDH3, ALDHIII) forms a cytoplasmic homodimer that preferentially oxidizes aromatic aldehyde substrates. ALDH genes upregulate as a part of the oxidative stress response and appear to be abundant in certain tumors that have an accelerated metabolism toward chemotherapy agents.

REFERENCES

1. Vasiliou, V., et al. 1992. Negative regulation of the murine cytosolic aldehyde dehydrogenase 3 (ALDH3C) gene by functional CYP1A1 and CYP1A2 proteins. Biochem. Biophys. Res. Commun. 187: 413-419.
2. Vasiliou, V., et al. 1999. Eukaryotic aldehyde dehydrogenase (ALDH) genes: human polymorphisms and recommended nomenclature based on divergent evolution and chromosomal mapping. Pharmacogenetics 9: 421-434.
3. Hsu, L.C., et al. 1999. Molecular analysis of two closely related mouse aldehyde dehydrogenase genes: identification of a role for ALDH1, but not ALDH-PB, in the biosynthesis of retinoic acid. Biochem. J. 339: 387-395.
4. Lin, M., et al. 2000. cDNA cloning and expression of a human aldehyde dehydrogenase (ALDH) active with 9-*cis*-retinal and identification of a rat ortholog, ALDH12. J. Biol. Chem. 275: 40106-40112.
5. Vasiliou, V., et al. 2005. Analysis and update of the human aldehyde dehydrogenase (ALDH) gene family. Hum. Genomics 2: 138-143.

CHROMOSOMAL LOCATION

Genetic locus: ALDH3A1 (human) mapping to 17p11.2.

SOURCE

ALDH3A1 (H-76) is a rabbit polyclonal antibody raised against amino acids 31-106 mapping near the N-terminus of ALDH3A1 of human origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

ALDH3A1 (H-76) is recommended for detection of ALDH3A1 of human origin by Western Blotting (starting dilution 1:200, 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).

ALDH3A1 (H-76) is also recommended for detection of ALDH3A1 in additional species, including canine.

Suitable for use as control antibody for ALDH3A1 siRNA (h): sc-72026, ALDH3A1 shRNA Plasmid (h): sc-72026-SH and ALDH3A1 shRNA (h) Lentiviral Particles: sc-72026-V.

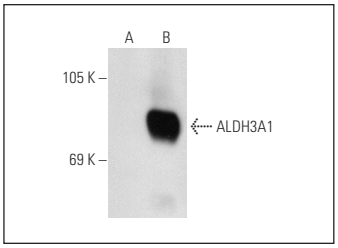
Molecular Weight of ALDH3A1: 50 kDa.

Positive Controls: ALDH3A1 (h2): 293T Lysate: sc-158256 or A549 cell lysate: sc-2413.

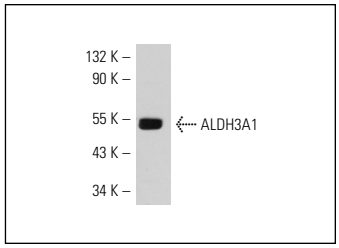
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



ALDH3A1 (H-76): sc-67310. Western blot analysis of ALDH3A1 expression in non-transfected: sc-110760 (**A**) and human ALDH3A1 transfected: sc-158256 (**B**) 293 whole cell lysates.



ALDH3A1 (H-76): sc-67310. Western blot analysis of ALDH3A1 expression in A549 whole cell lysate.

RESEARCH USE

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