SANTA CRUZ BIOTECHNOLOGY, INC.

ALDH3A1 (F-9): sc-515905

SANTA CRUZ BIOTECHNOLOGY

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 (ALDH-3c) 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. Kitagawa, K., et al. 2000. Aldehyde dehydrogenase (ALDH) 2 associates with oxidation of methoxyacetaldehyde; *in vitro* analysis with liver subcellular fraction derived from human and ALDH2 gene targeting mouse. FEBS Lett. 476: 306-311.
6. Westerlund, M., et al. 2005. Tissue- and species-specific expression patterns of class I, III and IV Adh and ALDH1 mRNAs in rodent embryos. Cell Tissue Res. 322: 227-236.

CHROMOSOMAL LOCATION

Genetic locus: Aldh3a1 (mouse) mapping to 11 B2.

SOURCE

ALDH3A1 (F-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 430-453 at the C-terminus of ALDH3A1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

ALDH3A1 (F-9) is recommended for detection of ALDH3A1 of mouse 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 ALDH3A1 siRNA (m): sc-72033, ALDH3A1 shRNA Plasmid (m): sc-72033-SH and ALDH3A1 shRNA (m) Lentiviral Particles: sc-72033-V.

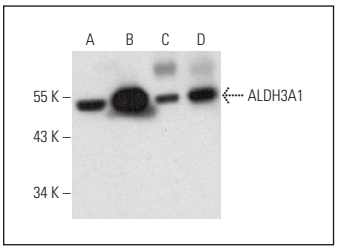
Molecular Weight of ALDH3A1: 50 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, mouse eye extract: sc-364241 or mouse lung extract: sc-2390.

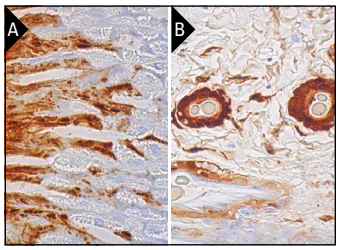
RECOMMENDED SUPPORT REAGENTS

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



ALDH3A1 (F-9): sc-515905. Western blot analysis of ALDH3A1 expression in NIH/3T3 whole cell lysate (**A**) and mouse eye (**B**), mouse lung (**C**) and mouse stomach (**D**) tissue extracts.



ALDH3A1 (F-9): sc-515905. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse stomach tissue showing cytoplasmic and nuclear staining of glandular cells (**A**), and of mouse skin tissue showing cytoplasmic and nuclear staining of sebaceous gland cells (**B**). Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216.

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.