

ALDH1A1 (N-19): sc-22588

BACKGROUND

Aldehyde dehydrogenases (ALDHs) mediate NADP⁺-dependent oxidation of aldehydes into acids during the detoxification of alcohol-derived acetaldehyde; 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, ALDH1A1, 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

- Ikawa, M. et al. 1983. Isolation and characterization of aldehyde dehydrogenase isozymes from usual and atypical human livers. *J. Biol. Chem.* 258: 6282-6287.
- Vasilou, 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.
- Vasilou, 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.
- 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.

CHROMOSOMAL LOCATION

Genetic locus: ALDH1A1 (human) mapping to 9q21.13.

SOURCE

ALDH1A1 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of ALDH1A1 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.

Blocking peptide available for competition studies, sc-22588 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

ALDH1A1 (N-19) is recommended for detection of ALDH1A1 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).

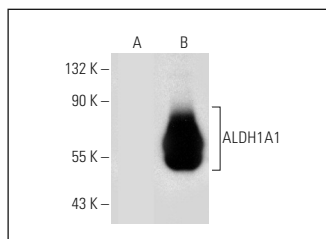
ALDH1A1 (N-19) is also recommended for detection of ALDH1A1 in additional species, including equine.

Suitable for use as control antibody for ALDH1A1 siRNA (h): sc-41442, ALDH1A1 shRNA Plasmid (h): sc-41442-SH and ALDH1A1 shRNA (h) Lentiviral Particles: sc-41442-V.

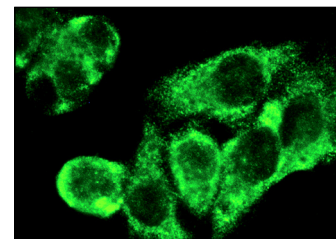
Molecular Weight of ALDH1A1: 56.2 kDa.

Positive Controls: ALDH1A1 (h): 293T Lysate: sc-174232, K-562 whole cell lysate: sc-2203 or Hep G2 cell lysate: sc-2227.

DATA



ALDH1A1 (N-19): sc-22588. Western blot analysis of ALDH1A1 expression in non-transfected: sc-117752 (A) and human ALDH1A1 transfected: sc-174232 (B) 293T whole cell lysates.



ALDH1A1 (N-19): sc-22588. Immunofluorescence staining of methanol-fixed Hep G2 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Le Moguen, K., et al. 2006. Comparative proteomic analysis of cisplatin sensitive IGROV1 ovarian carcinoma cell line and its resistant counterpart IGROV1-R10. *Proteomics* 6: 5183-5192.
- Moon, K.H., et al. 2007. Inactivation of cytosolic aldehyde dehydrogenase via S-nitrosylation in ethanol-exposed rat liver. *FEBS Lett.* 581: 3967-3972.
- Jean, E., et al. 2011. Aldehyde dehydrogenase activity promotes survival of human muscle precursor cells. *J. Cell. Mol. Med.* 15: 119-133.

RESEARCH USE

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

MONOS
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Try **ALDH1A1 (B-5): sc-374149** or **ALDH1A1 (A-6): sc-398578**, our highly recommended monoclonal alternatives to ALDH1A1 (N-19).