

ALDH1A2 (N-20): sc-22591

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, ALDH11, 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, ALDH11) 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.
- 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: ALDH1A2 (human) mapping to 15q21.3; Aldh1a2 (mouse) mapping to 9 D.

SOURCE

ALDH1A2 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of ALDH1A2 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-22591 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.

RESEARCH USE

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

APPLICATIONS

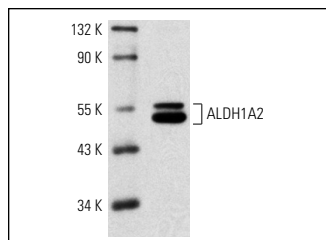
ALDH1A2 (N-20) is recommended for detection of ALDH1A2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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). ALDH1A2 (N-20) is also recommended for detection of ALDH1A2 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for ALDH1A2 siRNA (h): sc-41443, ALDH1A2 siRNA (m): sc-108074, ALDH1A2 shRNA Plasmid (h): sc-41443-SH, ALDH1A2 shRNA Plasmid (m): sc-108074-SH, ALDH1A2 shRNA (h) Lentiviral Particles: sc-41443-V and ALDH1A2 shRNA (m) Lentiviral Particles: sc-108074-V.

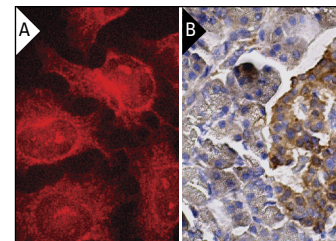
Molecular Weight of ALDH1A2: 55 kDa.

Positive Controls: mouse eye extract: sc-364241.

DATA



ALDH1A2 (N-20): sc-22591. Western blot analysis of ALDH1A2 expression in mouse eye tissue extract.



ALDH1A2 (N-20): sc-22591. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans and glandular cells (B).

SELECT PRODUCT CITATIONS

- Williams, S.J., et al. 2009. Vitamin A metabolism is impaired in human ovarian cancer. *Gynecol. Oncol.* 112: 637-645.
- Ma, J.J., et al. 2012. Retinoic acid synthesis and metabolism are concurrent in the mouse uterus during peri-implantation. *Cell Tissue Res.* 350: 525-537.
- Coste, K., et al. 2014. Metabolic disturbances of the vitamin A pathway in human diaphragmatic hernia. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 308: L147-L157.

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Try **ALDH1A2 (G-2): sc-393204**, our highly recommended monoclonal alternative to ALDH1A2 (N-20).