

ALDH1/2 (H-85): sc-50385

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; ALDH1L1; ALDH-E1 or ALDH E1, is a retinal dehydrogenase that participates in the biosynthesis of retinoic acid (RA). The major liver isoform ALDH1 localizes to cytosolic space, while ALDH2 localizes to the mitochondria. The ALDH1A2 (RALDH2, RALDH2-T) gene produces three different transcripts and also catalyzes the synthesis of RA from retinaldehyde. ALDH2 is present in most Caucasians, yet is absent in 50% of Asians. The absence of this enzyme has been linked to alcohol intolerance; and thusly, a reduced risk for alcoholism-related liver disease.

REFERENCES

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

SOURCE

ALDH1/2 (H-85) is a rabbit polyclonal antibody raised against amino acids 186-270 mapping within an internal region 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.

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

ALDH1/2 (H-85) is recommended for detection of ALDH1A1, ALDH1A2, ALDH1A3 and ALDH2 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ALDH1/2 (H-85) is also recommended for detection of ALDH1A1, ALDH1A2, ALDH1A3 and ALDH2 in additional species, including equine, canine, bovine, porcine and avian.

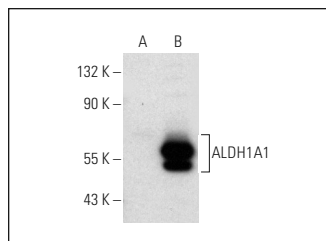
Molecular Weight of ALDH1/2: 53 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, mouse liver extract: sc-2256 or ALDH1A1 (h): 293T Lysate: sc-174232.

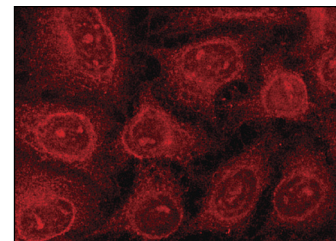
RECOMMENDED SECONDARY REAGENTS

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



ALDH1/2 (H-85): sc-50385. Western blot analysis of ALDH1A1 expression in non-transfected: sc-117752 (A) and human ALDH1A1 transfected: sc-174232 (B) 293T whole cell lysates.



ALDH1/2 (H-85): sc-50385. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Burger, P.E., et al. 2009. High aldehyde dehydrogenase activity: a novel functional marker of murine prostate stem/progenitor cells. *Stem Cells* 27: 2220-2228.
2. Mukhopadhyay, K.D., et al. 2011. Isolation and characterization of a metastatic hybrid cell line generated by ER negative and ER positive breast cancer cells in mouse bone marrow. *PLoS ONE* 6: e20473.
3. Liu, Z., et al. 2012. Blockade of autocrine TGF-β signaling inhibits stem cell phenotype, survival, and metastasis of murine breast cancer cells. *J. Stem Cell Res. Ther.* 2: 1-8.