

ALDH3A1 (B-8): sc-137168

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, ALDH1, 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

- 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.
- 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.

CHROMOSOMAL LOCATION

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

SOURCE

ALDH3A1 (B-8) is a mouse monoclonal antibody raised against amino acids 31-106 mapping near the N-terminus of ALDH3A1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

ALDH3A1 (B-8) is recommended for detection of ALDH3A1 of human 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 (h): sc-72026, ALDH3A1 shRNA Plasmid (h): sc-72026-SH and ALDH3A1 shRNA (h) Lentiviral Particles: sc-72026-V.

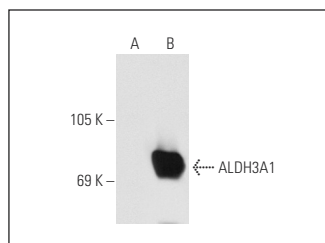
Molecular Weight of ALDH3A1: 50 kDa.

Positive Controls: ALDH3A1 (h2): 293 Lysate: sc-158256.

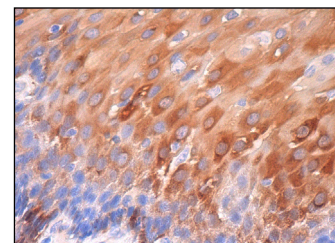
RECOMMENDED SUPPORT REAGENTS

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 (B-8): sc-137168. Western blot analysis of ALDH3A1 expression in non-transfected: sc-110760 (A) and human ALDH3A1 transfected: sc-158256 (B) 293 whole cell lysates.



ALDH3A1 (B-8): sc-137168. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic staining of squamous epithelial cells.

SELECT PRODUCT CITATIONS

- Barbaro, V., et al. 2009. Reconstruction of a human hemicornea through natural scaffolds compatible with the growth of corneal epithelial stem cells and stromal keratocytes. *Mol. Vis.* 15: 2084-2093.
- Calderaro, J., et al. 2014. ALDH3A1 is overexpressed in a subset of hepatocellular carcinoma characterised by activation of the Wnt/β-catenin pathway. *Virchows Arch.* 464: 53-60.
- Yan, J., et al. 2014. Aldehyde dehydrogenase 3A1 associates with prostate tumorigenesis. *Br. J. Cancer* 110: 2593-2603.
- Kang, J.H., et al. 2016. Aldehyde dehydrogenase is used by cancer cells for energy metabolism. *Exp. Mol. Med.* 48: e272.
- Mytar, B., et al. 2018. Characterization of human gastric adenocarcinoma cell lines established from peritoneal ascites. *Oncol. Lett.* 15: 4849-4858.
- Etienne, J., et al. 2020. Aldehyde dehydrogenases contribute to skeletal muscle homeostasis in healthy, aging, and Duchenne muscular dystrophy patients. *J. Cachexia Sarcopenia Muscle* 11: 1047-1069.

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.