

**ALDH1A1 Antibody**  
**Purified Mouse Monoclonal Antibody (Mab)**  
**Catalog # AM1846b**

## Specification

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### ALDH1A1 Antibody - Product Information

Application	<b>WB, IHC-P,E</b>
Primary Accession	<a href="#">P00352</a>
Other Accession	<a href="#">NP_000680.2</a>
Reactivity	<b>Human</b>
Host	<b>Mouse</b>
Clonality	<b>Monoclonal</b>
Isotype	<b>Mouse IgG1</b>
Calculated MW	<b>54862</b>

### ALDH1A1 Antibody - Additional Information

**Gene ID** 216

#### Other Names

Retinal dehydrogenase 1, RALDH 1, RaIDH1, ALDH-E1, ALHDII, Aldehyde dehydrogenase family 1 member A1, Aldehyde dehydrogenase, cytosolic, ALDH1A1, ALDC, ALDH1, PUMB1

#### Target/Specificity

This ALDH1A1 monoclonal antibody is generated from mouse immunized with ALDH1A1 recombinant protein.

#### Dilution

WB~~1:500~1000

IHC-P~~1:50~100

#### Format

Purified monoclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein G column, eluted with high and low pH buffers and neutralized immediately, followed by dialysis against PBS.

#### Storage

Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

#### Precautions

ALDH1A1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

### ALDH1A1 Antibody - Protein Information

**Name** ALDH1A1 ([HGNC:402](#))

**Function** Cytosolic dehydrogenase that catalyzes the irreversible oxidation of a wide range of

aldehydes to their corresponding carboxylic acid (PubMed:[12941160](#), PubMed:[15623782](#), PubMed:[17175089](#), PubMed:[19296407](#), PubMed:[25450233](#), PubMed:[26373694](#)). Functions downstream of retinol dehydrogenases and catalyzes the oxidation of retinaldehyde into retinoic acid, the second step in the oxidation of retinol/vitamin A into retinoic acid (By similarity). This pathway is crucial to control the levels of retinol and retinoic acid, two important molecules which excess can be teratogenic and cytotoxic (By similarity). Also oxidizes aldehydes resulting from lipid peroxidation like (E)-4-hydroxynon-2-enal/HNE, malonaldehyde and hexanal that form protein adducts and are highly cytotoxic. By participating for instance to the clearance of (E)-4-hydroxynon-2-enal/HNE in the lens epithelium prevents the formation of HNE-protein adducts and lens opacification (PubMed:[12941160](#), PubMed:[15623782](#), PubMed:[19296407](#)). Functions also downstream of fructosamine-3-kinase in the fructosamine degradation pathway by catalyzing the oxidation of 3-deoxyglucosone, the carbohydrate product of fructosamine 3-phosphate decomposition, which is itself a potent glycation agent that may react with lysine and arginine side-chains of proteins (PubMed:[17175089](#)). Has also an aminobutyraldehyde dehydrogenase activity and is probably part of an alternative pathway for the biosynthesis of GABA/4-aminobutanoate in midbrain, thereby playing a role in GABAergic synaptic transmission (By similarity).

#### Cellular Location

Cytoplasm, cytosol. Cell projection, axon {ECO:0000250|UniProtKB:P24549}

#### Tissue Location

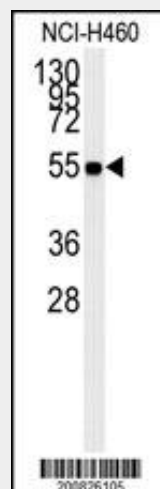
Expressed by erythrocytes (at protein level).

### ALDH1A1 Antibody - Protocols

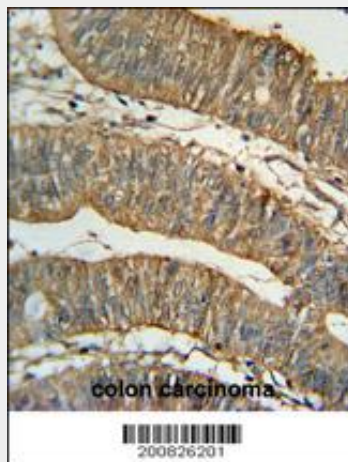
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### ALDH1A1 Antibody - Images



ALDH1A1 Monoclonal Antibody (Cat. #AM1846b) western blot analysis in NCI-H460 cell line lysates (15µg/lane). This demonstrates the ALDH1A1 antibody detected the ALDH1A1 protein (arrow).



ALDH1A1 Monoclonal Antibody (Cat. #AM1846b) immunohistochemistry analysis in formalin fixed and paraffin embedded human colon carcinoma followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of the ALDH1A1 Monoclonal Antibody for immunohistochemistry. Clinical relevance has not been evaluated.

#### **ALDH1A1 Antibody - Background**

ALDH1A1 encodes a transcriptional regulator belonging to the SCY1-like family of kinase-like proteins. The protein has a divergent N-terminal kinase domain that is thought to be catalytically inactive, and can bind specific DNA sequences through its C-terminal domain. It activates transcription of the telomerase reverse transcriptase and DNA polymerase beta genes. The protein has been localized to the nucleus, and also to the cytoplasm and centrosomes during mitosis.

#### **ALDH1A1 Antibody - References**

References for protein:

1. Gong, Y., et al. *Oncogene* 28(12):1549-1560(2009)
2. Burman, J.L., et al. *J. Biol. Chem.* 283(33):22774-22786(2008)
3. Sugiyama, N., et al. *Mol. Cell Proteomics* 6(6):1103-1109(2007)

References for HepG2 cell line:

1. Knowles BB, et al. (1980). Human hepatocellular carcinoma cell lines secrete the major plasma proteins and hepatitis B surface antigen. *Science* 209: 497-499. [PubMed: 6248960].
2. Darlington GJ, et al. (1987). Growth and hepatospecific gene expression of human hepatoma cells in a defined medium. *In Vitro Cell. Dev. Biol.* 23: 349-354. [PubMed: 3034851].
3. Ihrke, G; Neufeld, EB; Meads, T; Shanks, MR; Cassio, D; Laurent, M; Schroer, TA; Pagano, RE et al. (1993). "WIF-B cells: an in vitro model for studies of hepatocyte polarity". *Journal of Cell Biology* 123 (6): 1761-1775. [PubMed:7506266].
4. Mersch-Sundermann, V.; Knasmüller, S.; Wu, X. J.; Darroudi, F.; Kassie, F. (2004). "Use of a human-derived liver cell line for the detection of cytoprotective, antigenotoxic and cogenotoxic agents". *Toxicology* 198 (1-3): 329-340. [PubMed:15138059].

#### **ALDH1A1 Antibody - Citations**

- [Aldehyde dehydrogenase 1A1 stabilizes transcription factor Gli2 and enhances the activity of Hedgehog signaling in hepatocellular cancer.](#)