10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Anti-ALDH1A1 (Aldehyde Dehydrogenase 1A1) Antibody

Mouse Monoclonal Antibody
Catalog # AH13214

Product Information

Application	WB, IHC-P, IF, FC
Primary Accession	P00352
Other Accession	76392
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse / IgG1
Clone Names	ALDH1A1/1381
Calculated MW	54862

Additional Information

Gene ID	216
Other Names	Acetaldehyde dehydrogenase 1; AHD2; ALDC; Aldehyde dehydrogenase 1 soluble; Aldehyde dehydrogenase 1A1; Aldehyde dehydrogenase family 1 member A1; ALDH-E1; ALDH1; ALDH1A1; epididymis luminal protein 12; epididymis luminal protein 9; epididymis secretory sperm binding protein Li 53e; HEL-S-53e; PUMB1; RALDH1; Retinal dehydrogenase 1
Application Note	Flow Cytometry (0.5-1ug/million cells); Immunofluorescence (1-2ug/ml); ,Western Blotting (0.5-1ug/ml); ,Immunohistology (Formalin-fixed) (0.5-1ug/ml for 30 min at RT),(Staining of formalin-fixed tissues requires boiling tissue sections in 10mM Citrate Buffer, pH 6.0, for 10-20 min followed by cooling at RT for 20 minutes),Optimal dilution for a specific application should be determined.
Format	200ug/ml of Ab purified from Bioreactor Concentrate by Protein A/G. Prepared in 10mM PBS with 0.05% BSA & 0.05% azide. Also available WITHOUT BSA & azide at 1.0mg/ml.
Storage	Store at 2 to 8°C.Antibody is stable for 24 months.
Precautions	Anti-ALDH1A1 (Aldehyde Dehydrogenase 1A1) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

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). Also functions 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 glycating agent that may react with lysine and arginine side-chains of proteins (PubMed:17175089). Also has 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).

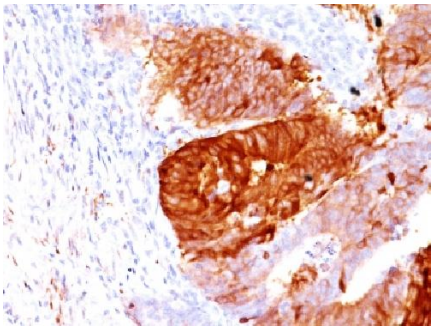
Cellular Location Cytoplasm, cytosol. Cell projection, axon {ECO:0000250|UniProtKB:P24549}

Tissue Location Expressed by erythrocytes (at protein level).

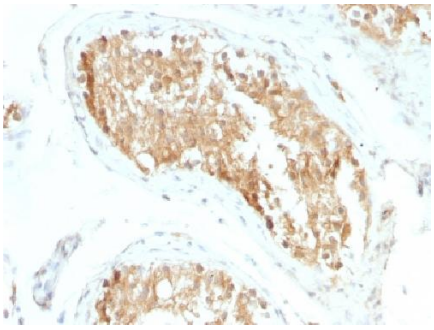
Background

ALDH1A1 belongs to the ALDH enzymes, a family of evolutionarily conserved enzymes comprised of 19 isoforms that are localized in the cytoplasm, mitochondria or nucleus. ALDH1A1 is predominantly expressed in the epithelium of testis, brain, eye, liver, kidney, as well as neural and hematopoietic stem cells. Reportedly, high ALDH1A1 expression is found in solitary fibrous tumor (SFT) and hemangiopericytoma (HPC), compared to meningiomas and synovial sarcomas. In combination with CD34, ALDH1A1 may be useful for the differentiation among SFT, HPC, meningioma, and synovial sarcoma.

Images



Formalin-fixed, paraffin-embedded Human Colon Carcinoma stained with ALDH1A1 Monoclonal Antibody (ALDH1A1/1381).



Formalin-fixed, paraffin-embedded Human Testicular Carcinoma stained with ALDH1A1 Monoclonal Antibody (ALDH1A1/1381).

Western Blot of K562 and Lung Lysate using ALDH1A1 Monoclonal Antibody (ALDH1A1/1381).