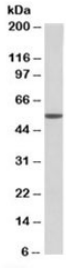
Goat Anti-ALDH3A1 Antibody / ALDH3 Polyclonal Antibody (R35824)

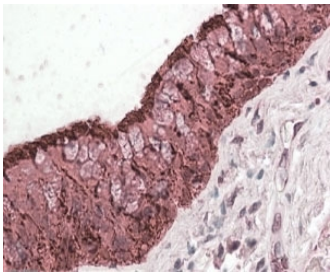
Catalog No.	Formulation	Size
R35824-100UG	0.5 mg/ml in 1X TBS, pH7.3, with 0.5% BSA (US sourced) and 0.02% sodium azide	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human, Mouse
Format	Antigen affinity purified
Host	Goat
Clonality	Polyclonal (goat origin)
Isotype	Goat Ig
Purity	Antigen affinity
Gene ID	218
Applications	Western blot: 0.01-0.03ug/ml Immunohistochemistry (FFPE): 3-5ug/ml ELISA (peptide) LOD: 1:32000
Limitations	This Goat Anti-ALDH3A1 Antibody / ALDH3 Polyclonal Antibody is available for research use only.



Goat Anti-ALDH3A1 Antibody WB Analysis of Mouse Eye Lysate. Western blot analysis of mouse eye lysate using ALDH3 Polyclonal Antibody at 0.01 ug/ml. The predicted molecular weight of ALDH3A1 is approximately 51 kDa. The displayed blot does not show a clearly distinguishable immunoreactive band, so the observed molecular weight cannot be reliably determined from this image.



Goat Anti-ALDH3A1 Antibody IHC Staining of Human Lung Tissue. Immunohistochemical analysis of FFPE human lung tissue using ALDH3 Polyclonal Antibody at 4 ug/ml. Immunoreactivity is observed predominantly in the epithelial lining of the airway, with comparatively limited staining in the surrounding connective tissue. Heat-induced epitope retrieval was performed by steaming sections in pH 6 citrate buffer. Detection was performed using an alkaline phosphatase-based staining system.

Description

Goat Anti-ALDH3A1 Antibody / ALDH3 Polyclonal Antibody targets aldehyde dehydrogenase 3 family member A1 (ALDH3A1), a cytosolic enzyme that catalyzes the oxidation of aldehydes to their corresponding carboxylic acids. ALDH3A1 belongs to the aldehyde dehydrogenase superfamily and contributes to the metabolism of reactive compounds generated through normal cellular processes and environmental exposure. Its catalytic properties include activity toward selected aromatic and medium-chain aliphatic aldehydes, distinguishing it from other members of the enzyme family.

ALDH3A1 is particularly notable for its high abundance in the corneal epithelium, where it is classified as a corneal crystallin. Unlike conventional structural crystallins, ALDH3A1 retains enzymatic activity while contributing substantially to the soluble protein content of corneal cells. Its abundance has been associated with the maintenance of corneal transparency and protection against ultraviolet-associated oxidative injury. These characteristics make ALDH3A1 an important component of the biochemical defenses that help preserve ocular tissue integrity.

Ultraviolet radiation and other sources of oxidative stress can initiate lipid peroxidation, producing reactive aldehydes that modify cellular proteins, nucleic acids, and membrane components. ALDH3A1 helps limit the accumulation of selected aldehyde products through cofactor-dependent oxidation. Experimental studies have also investigated protective functions of ALDH3A1 beyond its catalytic activity, including its potential contribution to the cellular response to oxidative damage. The relative importance of enzymatic and nonenzymatic mechanisms depends on the biological context.

ALDH3A1 expression is regulated by transcriptional mechanisms associated with xenobiotic metabolism and oxidative stress. Its distribution varies among tissues, reflecting differences in metabolic activity and environmental exposure. Alternative ALDH3A1 transcripts have also been reported, including variants predicted to encode proteins with different molecular weights. However, the expression and functional significance of individual protein isoforms require further characterization.

In addition to its established role in corneal physiology, ALDH3A1 has been investigated in cancer biology because aldehyde detoxification can influence cellular responses to oxidative injury and certain therapeutic agents. Goat Anti-ALDH3A1 Antibody provides an alternative host-species reagent for examining this enzyme in the context of ocular protection, aldehyde metabolism, and cellular stress adaptation.

For an alternative ALDH3A1 reagent with broader species reactivity, explore our ALDH3A1 Antibody, featuring Western blot analysis of human and rodent samples, cellular immunofluorescence, and knockout comparison data.

Application Notes

Optimal dilution of the Goat Anti-ALDH3A1 Antibody / ALDH3 Polyclonal Antibody should be determined by the researcher.

Immunogen

Amino acids RYPPSPAKMTQH were used as the immunogen for this ALDH3A1 antibody.

Storage

Aliquot and store the ALDH3A1 antibody at -20oC.

Alternate Names

Goat anti-ALDH3 antibody, Goat anti-aldehyde dehydrogenase 3 antibody, Goat anti-aldehyde dehydrogenase 3A1 antibody, ALDH3A1 goat polyclonal antibody, ALDH3 goat polyclonal antibody, Aldehyde dehydrogenase 3A1 antibody, Aldehyde dehydrogenase family 3 member A1 antibody, Aldehyde dehydrogenase class 3 antibody, Corneal aldehyde dehydrogenase antibody, ALDH III antibody

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