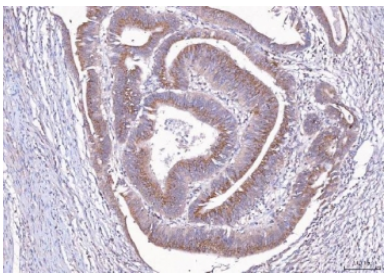
ALDH3A1 C-Terminal Antibody / Aldehyde Dehydrogenase 3 Antibody (R31185)

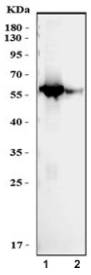
Catalog No.	Formulation	Size
R31185	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

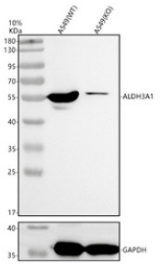
Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2 Trehalose
UniProt	P30838
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-4ug/ml
Limitations	This ALDH3A1 C-Terminal Antibody / Aldehyde Dehydrogenase 3 Antibody is available for research use only.



ALDH3A1 C-Terminal Antibody IHC Staining of Human Rectal Cancer Tissue. Immunohistochemical analysis of FFPE human rectal cancer tissue using Aldehyde Dehydrogenase 3 Antibody. Brown immunoreactivity is visible in the malignant glandular epithelium, with variation in staining intensity across the tissue section. Heat-induced epitope retrieval was performed by boiling sections in pH 8 EDTA buffer for 20 minutes, followed by cooling before antibody incubation.



ALDH3A1 C-Terminal Antibody WB Analysis of Human A549 and HeLa Cell Lysates. Western blot analysis of human A549 (lane 1) and HeLa (lane 2) cell lysates using Aldehyde Dehydrogenase 3 Antibody. A prominent immunoreactive band is observed near 55 kDa in A549 lysate, with a weaker signal at a similar molecular weight in HeLa lysate. The predicted molecular weight of ALDH3A1 is approximately 51 kDa.



ALDH3A1 C-Terminal Antibody WB Analysis of Human A549 WT and ALDH3A1 KO Cells. Western blot analysis of wild-type (WT) A549 cell lysate (lane 1) and ALDH3A1 knockout (KO) A549 cell lysate (lane 2) using Aldehyde Dehydrogenase 3 Antibody. A prominent immunoreactive band is detected at approximately 55 kDa in WT cells and is markedly reduced in ALDH3A1 KO cells, supporting antibody specificity. The observed molecular weight is slightly higher than the predicted 50 kDa.

Description

ALDH3A1 C-Terminal Antibody / Aldehyde Dehydrogenase 3 Antibody targets aldehyde dehydrogenase 3 family member A1 (ALDH3A1), an enzyme involved in the oxidation of reactive aldehydes generated through cellular metabolism and environmental exposure. ALDH3A1 belongs to the aldehyde dehydrogenase superfamily, whose members catalyze the conversion of aldehydes into their corresponding carboxylic acids. Unlike several related enzymes that preferentially metabolize small aliphatic aldehydes, ALDH3A1 exhibits substantial activity toward certain aromatic and medium-chain aldehyde substrates.

A major biological function of ALDH3A1 involves protection against oxidative damage. Lipid peroxidation generates electrophilic aldehydes capable of modifying cellular proteins, nucleic acids, and membrane components. These reactions can disrupt enzyme activity, alter signaling pathways, and compromise cellular integrity. ALDH3A1 participates in the removal of selected reactive aldehydes through cofactor-dependent oxidation, contributing to the broader network of metabolic defenses against oxidative injury.

ALDH3A1 is particularly abundant in the corneal epithelium, where it is classified as a corneal crystallin. Corneal crystallins are soluble proteins present at high concentrations that contribute to the biochemical environment of transparent ocular tissue. ALDH3A1 has been investigated for its ability to protect against ultraviolet-associated oxidative stress, while its high abundance may also influence the physical properties of corneal cells. These functions extend beyond its conventional role as a metabolic enzyme.

The ALDH3A1 gene is located on chromosome 17p11.2, and its expression is influenced by transcriptional responses to xenobiotic exposure and cellular stress. Alternative ALDH3A1 transcripts have been described, including variants predicted to encode proteins of different lengths. However, the biological significance and protein-level expression of individual variants remain incompletely characterized. In cancer research, ALDH3A1 has attracted attention because aldehyde detoxification may contribute to tumor cell survival and resistance to certain anticancer treatments.

ALDH3A1 C-Terminal Antibody supports investigations into the abundance and tissue distribution of this metabolic enzyme. Characterizing ALDH3A1 expression can help clarify how aldehyde metabolism intersects with oxidative stress responses, corneal physiology, and cellular adaptation to chemically reactive compounds.

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

The stated application concentrations are suggested starting amounts. Titration of the ALDH3A1 C-Terminal Antibody / Aldehyde Dehydrogenase 3 Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

An amino acid sequence from the C-terminus of human ALDH3A1 (KVRYPPSPAKMTQH) was used as the immunogen for this ALDH3A1 antibody.

Storage

After reconstitution, the ALDH3A1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

ALDH3A1 antibody, ALDH3 antibody, Aldehyde dehydrogenase 3A1 antibody, Aldehyde dehydrogenase family 3 member A1 antibody, Aldehyde dehydrogenase class 3 antibody, Class 3 aldehyde dehydrogenase antibody, ALDH III antibody, Corneal aldehyde dehydrogenase antibody, ALDH3A1 corneal crystallin antibody, ALDH3A1 C-terminal peptide antibody

Copyright © NSJ Bioreagents. All rights reserved.