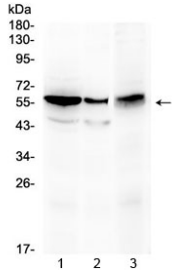
ALDH1A3 Antibody / Retinoic Acid Synthesis Enzyme (R32728)

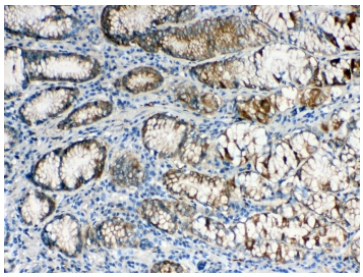
Catalog No.	Formulation	Size
R32728	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

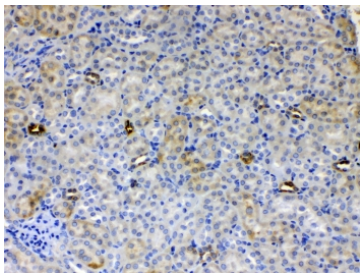
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P47895
Localization	Cytoplasm
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Immunofluorescence: 5ug/ml Flow cytometry: 1-3ug/million cells
Limitations	This ALDH1A3 Antibody / Retinoic Acid Synthesis Enzyme is available for research use only.



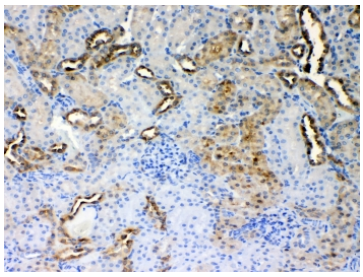
ALDH1A3 Antibody Human Mouse Rat WB. Western blot analysis of 1) rat kidney, 2) mouse stomach, and 3) human HepG2 lysates using ALDH1A3 antibody demonstrates a prominent immunoreactive band at approximately 56 kDa, consistent with the predicted molecular weight of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme responsible for catalyzing the conversion of retinaldehyde to retinoic acid, a critical signaling molecule involved in cellular differentiation and developmental regulation. The observed expression across rat, mouse, and human samples is consistent with the conserved role of ALDH1A3 in retinoid metabolism, tissue homeostasis, and maintenance of cellular identity. Western blot was performed using 0.5 ug/ml primary antibody. Predicted molecular weight: ~56 kDa.



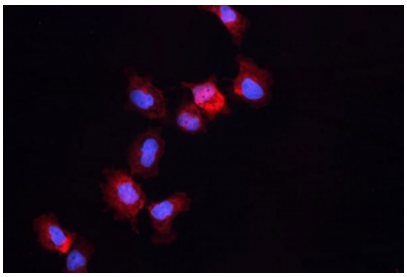
ALDH1A3 Antibody Stomach Cancer IHC. Immunohistochemistry staining of FFPE human stomach cancer tissue using ALDH1A3 antibody demonstrates moderate to strong cytoplasmic staining within neoplastic glandular epithelial cells, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme involved in retinoic acid synthesis and regulation of cellular differentiation pathways. The observed staining pattern is consistent with the role of ALDH1A3 in retinoid metabolism, tissue homeostasis, and cancer-associated cellular plasticity. These findings support the utility of ALDH1A3 antibody for studies of tumor biology, stem cell-associated pathways, and differentiation-related signaling mechanisms. Required HIER: steam section in pH6 citrate buffer for 20 min and allow to cool prior to testing.



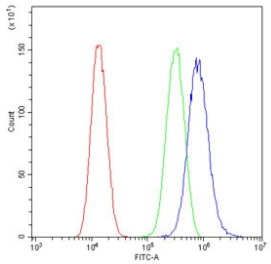
ALDH1A3 Antibody Mouse Kidney IHC. Immunohistochemistry staining of FFPE mouse kidney tissue using ALDH1A3 antibody demonstrates weak to moderate cytoplasmic staining within renal tubular epithelial cells, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme that catalyzes the conversion of retinaldehyde to retinoic acid, thereby contributing to retinoid metabolism and regulation of differentiation-associated signaling pathways. The observed staining pattern is consistent with the role of ALDH1A3 in tissue homeostasis, cellular metabolism, and maintenance of specialized epithelial functions. These findings support the utility of ALDH1A3 antibody for studies of retinoic acid biology, tissue differentiation, and developmental metabolism. Required HIER: steam section in pH6 citrate buffer for 20 min and allow to cool prior to testing.



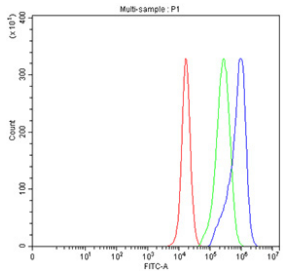
ALDH1A3 Antibody Rat Kidney IHC. Immunohistochemistry staining of FFPE rat kidney tissue using ALDH1A3 antibody demonstrates cytoplasmic staining within renal tubular epithelial structures, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme responsible for the synthesis of retinoic acid from retinaldehyde and serves as an important regulator of retinoid metabolism and differentiation-associated signaling pathways. The observed staining pattern is consistent with the role of ALDH1A3 in maintaining epithelial homeostasis, cellular metabolism, and tissue-specific functions within the kidney. These findings support the utility of ALDH1A3 antibody for studies of retinoic acid biology, developmental metabolism, and tissue differentiation. Required HIER: steam section in pH6 citrate buffer for 20 min and allow to cool prior to testing.



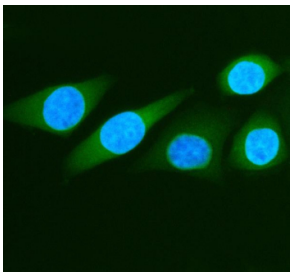
ALDH1A3 Antibody A431 IF. Immunofluorescent staining of human A431 cells using ALDH1A3 antibody demonstrates prominent cytoplasmic red fluorescence, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme that catalyzes the conversion of retinaldehyde to retinoic acid, thereby regulating retinoid metabolism and differentiation-associated signaling pathways. The observed cytoplasmic localization is consistent with the enzymatic function of ALDH1A3 and supports the utility of this antibody for studies of retinoic acid synthesis, stem cell biology, tissue differentiation, and cancer-associated cellular plasticity. Nuclei are visualized with DAPI nuclear stain (blue).



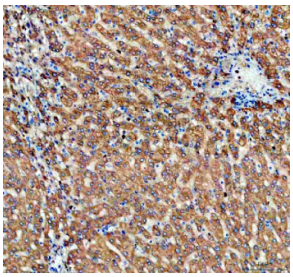
ALDH1A3 Antibody U-87 MG FACS. Flow cytometry analysis of fixed and permeabilized human U-87 MG cells using ALDH1A3 antibody demonstrates a distinct rightward shift of the antibody-stained population relative to the isotype control, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme involved in retinoic acid synthesis and regulation of cellular differentiation pathways. The observed staining profile supports expression of ALDH1A3 in U-87 MG cells and demonstrates the utility of this antibody for flow cytometric analysis of intracellular proteins associated with retinoid metabolism, stem cell biology, and cancer-associated cellular plasticity. Cells were fixed, permeabilized, and stained with 1 ug antibody per million cells following blocking with goat sera. Red = cells alone, green = isotype control, blue = ALDH1A3 antibody.



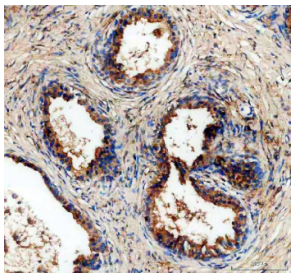
ALDH1A3 Antibody PC-3 FACS. Flow cytometry analysis of fixed and permeabilized human PC-3 cells using ALDH1A3 antibody demonstrates a clear rightward shift of the antibody-stained population relative to the isotype control, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme that catalyzes retinoic acid synthesis and contributes to cellular differentiation, retinoid metabolism, and maintenance of tissue homeostasis. The observed staining profile supports expression of ALDH1A3 in PC-3 cells and demonstrates the utility of this antibody for flow cytometric analysis of intracellular proteins associated with stem cell biology, cancer-associated cellular plasticity, and developmental metabolism. Cells were fixed, permeabilized, and stained with 1 ug antibody per million cells following blocking with goat sera. Red = cells alone, green = isotype control, blue = ALDH1A3 antibody.



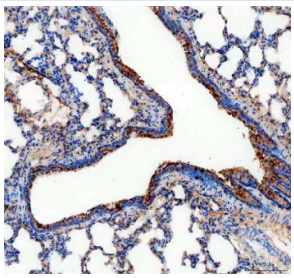
ALDH1A3 Antibody SiHa IF. Immunofluorescent staining of FFPE human SiHa cells using ALDH1A3 antibody demonstrates prominent cytoplasmic green fluorescence, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme responsible for the conversion of retinaldehyde to retinoic acid and plays important roles in retinoid metabolism, cellular differentiation, and maintenance of tissue homeostasis. The observed cytoplasmic localization is consistent with the enzymatic function of ALDH1A3 and supports the utility of this antibody for studies of retinoic acid signaling, stem cell biology, developmental metabolism, and cancer-associated cellular plasticity. Nuclei are visualized with DAPI nuclear stain (blue). HIER: steam section in pH6 citrate buffer for 20 min.



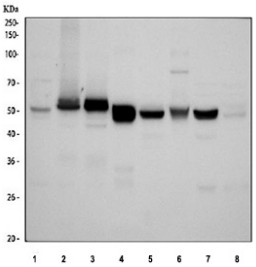
ALDH1A3 Antibody Human Liver IHC. Immunohistochemistry staining of FFPE human liver tissue using ALDH1A3 antibody with HRP-secondary and DAB chromogen demonstrates strong diffuse cytoplasmic staining throughout hepatocyte populations, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme responsible for the conversion of retinaldehyde to retinoic acid, thereby regulating retinoid metabolism and differentiation-associated signaling pathways. The observed staining pattern is consistent with the metabolic and homeostatic functions of ALDH1A3 in hepatic tissue and supports the utility of this antibody for studies of retinoic acid biology, tissue differentiation, and cancer-associated cellular plasticity. HIER: boil tissue sections in pH 8 EDTA for 20 min and allow to cool before testing.



ALDH1A3 Antibody Prostate Cancer IHC. Immunohistochemistry staining of FFPE human prostate cancer tissue using ALDH1A3 antibody with HRP-secondary and DAB chromogen demonstrates strong cytoplasmic staining within neoplastic glandular epithelial cells, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme involved in retinoic acid synthesis and regulation of cellular differentiation pathways. The observed staining pattern is consistent with the established role of ALDH1A3 in retinoid metabolism, tissue homeostasis, and cancer-associated cellular plasticity. These findings support the utility of ALDH1A3 antibody for studies of tumor biology, stem cell-associated pathways, and differentiation-related signaling mechanisms. HIER: boil tissue sections in pH 8 EDTA for 20 min and allow to cool before testing.



ALDH1A3 Antibody Rat Lung IHC. Immunohistochemistry staining of FFPE rat lung tissue using ALDH1A3 antibody with HRP-secondary and DAB chromogen demonstrates prominent cytoplasmic staining of bronchiolar and airway-associated epithelial cells, consistent with expression of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme that catalyzes the conversion of retinaldehyde to retinoic acid, thereby regulating retinoid metabolism and differentiation-associated signaling pathways. The observed staining pattern is consistent with the role of ALDH1A3 in epithelial homeostasis, tissue maintenance, and cellular differentiation within the respiratory tract. These findings support the utility of ALDH1A3 antibody for studies of retinoic acid biology, developmental metabolism, and tissue-specific regulation. HIER: boil tissue sections in pH 8 EDTA for 20 min and allow to cool before testing.



ALDH1A3 Antibody Multi-Species WB. Western blot analysis of 1) human HepG2, 2) human U-87 MG, 3) human PC-3, 4) rat liver, 5) rat kidney, 6) rat C6, 7) mouse liver, and 8) mouse kidney tissue lysates using ALDH1A3 antibody demonstrates a prominent immunoreactive band at approximately 56 kDa, consistent with the predicted molecular weight of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3). Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is an NAD-dependent enzyme responsible for catalyzing the conversion of retinaldehyde to retinoic acid, thereby regulating retinoid metabolism and differentiation-associated signaling pathways. The broad expression observed across human, rat, and mouse tissues is consistent with the conserved role of ALDH1A3 in tissue homeostasis, cellular differentiation, and maintenance of retinoic acid-dependent biologic processes. Western blot was performed using 0.5 ug/ml primary antibody. Predicted molecular weight: ~56 kDa.

Description

ALDH1A3 Antibody / Retinoic Acid Synthesis Enzyme is designed for the detection and study of Aldehyde Dehydrogenase 1 Family Member A3 (ALDH1A3), an NAD-dependent oxidoreductase responsible for catalyzing the conversion of retinaldehyde into retinoic acid. Also known as retinaldehyde dehydrogenase 3 (RALDH3), ALDH1A3 is a critical component of retinoid metabolism and functions as a major regulator of retinoic acid signaling pathways. Through the generation of retinoic acid, ALDH1A3 influences transcriptional programs that govern cellular differentiation, tissue patterning, and maintenance of developmental processes throughout vertebrate biology.

ALDH1A3 belongs to the aldehyde dehydrogenase superfamily, a large group of enzymes involved in oxidation of endogenous and exogenous aldehydes. Among these enzymes, ALDH1A3 serves a specialized role in vitamin A metabolism by generating retinoic acid, a signaling molecule that regulates expression of numerous genes involved in growth, differentiation, and tissue homeostasis. Because retinoic acid functions as a potent morphogen and transcriptional regulator, ALDH1A3 occupies an important position linking metabolic pathways with developmental

signaling networks.

Retinoic acid signaling is essential for embryogenesis and organ formation, and ALDH1A3 contributes to the establishment of retinoic acid gradients that guide tissue specification and cellular identity. Regulation of these pathways is critical for proper development of the nervous system, sensory organs, and numerous epithelial structures. Consequently, ALDH1A3 has become an important target in developmental biology and regenerative medicine research. Investigations of ALDH1A3 continue to improve understanding of how metabolic enzymes influence signaling pathways and cellular differentiation programs.

In addition to its developmental functions, ALDH1A3 has emerged as an important marker in stem cell biology and cancer research. Members of the aldehyde dehydrogenase family are frequently associated with progenitor cell populations and cellular plasticity. ALDH1A3 expression has therefore attracted considerable interest in studies examining stemness, differentiation status, and mechanisms that regulate cellular identity. The enzyme is also widely investigated in research involving tumor biology, tissue remodeling, and adaptation to changing microenvironments.

Beyond developmental and cancer-related processes, ALDH1A3 contributes to broader aspects of cellular metabolism and tissue homeostasis. Retinoid-dependent pathways regulate proliferation, differentiation, and maintenance of specialized cellular functions across diverse tissues. Through its enzymatic activity, ALDH1A3 provides an important link between metabolism and transcriptional control, illustrating how biochemical pathways influence physiologic responses and cellular behavior.

ALDH1A3 has become increasingly recognized as a valuable molecular target for studies involving stem cell biology, developmental signaling, regenerative medicine, cancer biology, and retinoid metabolism. Its role as a producer of retinoic acid places it at the intersection of metabolism and gene regulation, making ALDH1A3 an important subject for investigations of tissue development and cellular specialization.

ALDH1A3 Antibody is useful for investigating retinoic acid synthesis, retinoid metabolism, developmental biology, stem cell regulation, tissue differentiation, and cancer biology. Researchers utilize ALDH1A3 Antibody reagents to evaluate protein expression patterns and study molecular mechanisms governing cellular metabolism, developmental signaling, transcriptional regulation, and maintenance of cellular identity.

Explore additional antibodies to cancer stem cell markers, differentiation regulators, and tumor-associated metabolic proteins on our Cancer Antibodies page.

Application Notes

Optimal dilution of the ALDH1A3 Antibody / Retinoic Acid Synthesis Enzyme should be determined by the researcher.

Immunogen

Amino acids N37-K154 from the human protein were used as the immunogen for the ALDH1A3 antibody.

Storage

After reconstitution, the ALDH1A3 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

ALDH1A3 Antibody, RALDH3 Antibody, Aldehyde Dehydrogenase 1 Family Member A3 Antibody, Retinaldehyde Dehydrogenase 3 Antibody, Retinoic Acid Synthesis Enzyme Antibody, Vitamin A Metabolism Enzyme Antibody, Retinoid Metabolism Protein Antibody

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