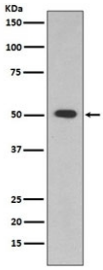
ALDH1A1 Antibody AHA-1 / ALDH1A1 Rabbit Monoclonal Antibody [clone AHA-1] (RQ4832)

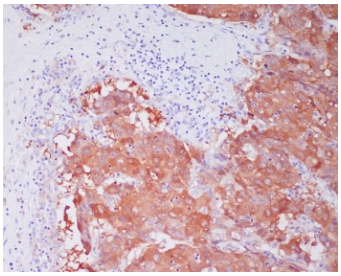
Catalog No.	Formulation	Size
RQ4832	Antibody in PBS with 0.02% sodium azide, 50% glycerol and 0.4-0.5mg/ml BSA	100 ul

Bulk quote request

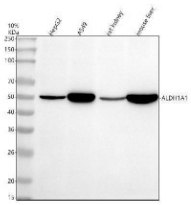
Species Reactivity	Human, Mouse, Rat
Format	Purified
Host	Rabbit
Clonality	Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	AHA-1
Purity	Affinity purified
UniProt	P00352
Applications	Western blot: 1:500 Immunohistochemistry (FFPE): 1:50
Limitations	This ALDH1A1 Antibody AHA-1 / ALDH1A1 Rabbit Monoclonal Antibody is available for research use only.



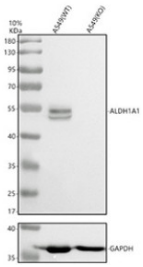
ALDH1A1 Antibody AHA-1 WB Analysis of Human HepG2 Cell Lysate. Western blot analysis of human HepG2 whole-cell lysate using ALDH1A1 Rabbit Monoclonal Antibody clone AHA-1. A prominent immunoreactive band is detected at approximately 50-55 kDa, consistent with the predicted molecular weight of ALDH1A1 of approximately 55 kDa.



ALDH1A1 Antibody AHA-1 IHC Staining of Human Liver Cancer Tissue. Immunohistochemical analysis of FFPE human liver cancer tissue using ALDH1A1 Rabbit Monoclonal Antibody clone AHA-1. Prominent brown DAB immunoreactivity is observed in portions of the tumor tissue, with predominantly cytoplasmic staining and heterogeneous signal intensity. Heat-induced epitope retrieval was performed using pH 6 citrate buffer for 10-20 minutes.



ALDH1A1 Antibody AHA-1 WB Analysis of Human Cell Lines and Rodent Tissues. Western blot analysis of human HepG2 (lane 1) and A549 (lane 2) whole-cell lysates, rat kidney tissue (lane 3), and mouse liver tissue (lane 4) using ALDH1A1 Rabbit Monoclonal Antibody clone AHA-1 at a 1:500 dilution. Prominent immunoreactive bands are detected at approximately 50 kDa in all four samples, slightly below the predicted ALDH1A1 molecular weight of 55 kDa. The results demonstrate antibody reactivity across the tested human, rat, and mouse samples.



ALDH1A1 Antibody AHA-1 WB Analysis of A549 WT and ALDH1A1 KO Cells. Western blot analysis of wild-type (WT) and ALDH1A1-knockout (KO) human A549 whole-cell lysates using ALDH1A1 Rabbit Monoclonal Antibody clone AHA-1 at a 1:500 dilution. An immunoreactive band at approximately 55 kDa is detected in the WT lysate but is absent in the KO sample, supporting ALDH1A1-specific detection at the expected molecular weight. GAPDH serves as a loading control for the two samples.

Description

ALDH1A1 Antibody AHA-1 / ALDH1A1 Rabbit Monoclonal Antibody recognizes aldehyde dehydrogenase 1 family member A1 (ALDH1A1), a cytosolic enzyme involved in aldehyde detoxification and retinoic acid biosynthesis. ALDH1A1 belongs to the aldehyde dehydrogenase superfamily, whose members catalyze the NAD-dependent oxidation of aldehydes to their corresponding carboxylic acids. Through these reactions, ALDH1A1 contributes to cellular protection against reactive aldehydes generated by normal metabolism, lipid peroxidation, and environmental exposures. Its enzymatic activity also participates in metabolic pathways that influence cell signaling and differentiation.

One of the best-characterized functions of ALDH1A1 is the oxidation of retinaldehyde to retinoic acid, a signaling molecule that regulates gene expression through nuclear retinoic acid receptors. Retinoic acid influences embryonic development, tissue homeostasis, and cellular differentiation. ALDH1A1 is one of several enzymes capable of catalyzing retinaldehyde oxidation, and its contribution to retinoic acid production varies according to tissue type and physiological conditions. The enzyme also participates in the metabolism of additional endogenous and exogenous aldehyde substrates.

ALDH1A1 has attracted considerable attention in cancer research because elevated aldehyde dehydrogenase activity is associated with stem-like properties in certain tumor cell populations. ALDH1A1 expression has been investigated as a marker of cancer stem cell characteristics, including self-renewal, tumor initiation, and resistance to therapeutic stress. However, ALDH activity is not exclusive to ALDH1A1, and its usefulness as a stem cell marker depends on tumor type and experimental context. Increased ALDH1A1 expression has also been associated with resistance to selected chemotherapeutic agents, potentially reflecting enhanced detoxification capacity and altered cellular signaling.

ALDH1A1 is expressed in multiple normal tissues, including the liver, where aldehyde metabolism contributes to cellular homeostasis. Its abundance and biological functions vary among tissues and disease states. ALDH1A1 Antibody AHA-1 provides a reagent for investigating protein expression in studies of aldehyde metabolism, retinoid signaling, cellular differentiation, and cancer-associated metabolic adaptations.

For broader multi-application ALDH1A1 detection including IF and flow cytometry workflows, see our ALDH1A1 Antibody / Cancer Stem Cell and Retinoic Acid Metabolism Marker page.

Application Notes

Optimal dilution of the ALDH1A1 Antibody AHA-1 / ALDH1A1 Rabbit Monoclonal Antibody should be determined by the researcher.

Immunogen

A synthetic peptide specific to human ALDH1A1 was used as the immunogen for the ALDH1A1 Antibody AHA-1.

Storage

Store the ALDH1A1 Antibody AHA-1 at -20oC.

Alternate Names

Aldehyde dehydrogenase 1A1 antibody, aldehyde dehydrogenase 1 family member A1 antibody, retinaldehyde dehydrogenase 1 antibody, RALDH1 antibody, ALDH1 antibody, cytosolic aldehyde dehydrogenase antibody

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