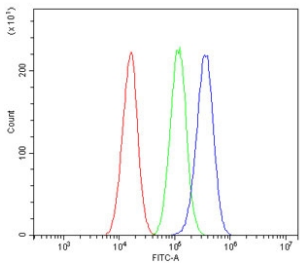
ALDH2 Antibody / Mitochondrial Detoxification Enzyme Antibody [clone 5G7] (RQ5544)

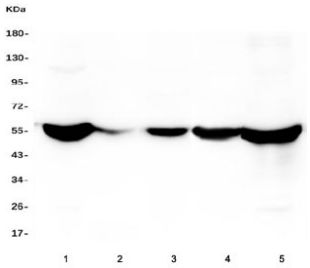
Catalog No.	Formulation	Size
RQ5544	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

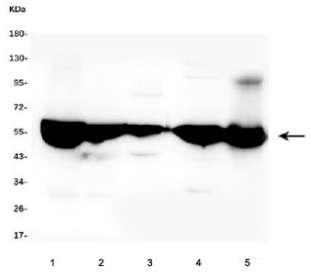
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2a
Clone Name	5G7
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	P05091
Applications	Western blot: 0.5-1ug/ml Flow cytometry: 1-3ug/million cells Immunofluorescence: 2-4ug/ml
Limitations	This ALDH2 Antibody / Mitochondrial Detoxification Enzyme Antibody is available for research use only.



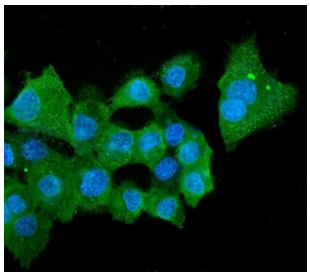
ALDH2 Antibody Human A549 FACS. Flow cytometric analysis of ALDH2 expression was performed using ALDH2 antibody in human A549 cells. ALDH2, also known as Aldehyde Dehydrogenase 2, is a mitochondrial enzyme that catalyzes the detoxification of reactive aldehydes generated during alcohol metabolism, oxidative stress, and lipid peroxidation. Cells were blocked with goat sera and stained with ALDH2 antibody at 1 ug/million cells. Red = cells alone, Green = isotype control, Blue = ALDH2 antibody. A distinct rightward shift of the ALDH2 antibody histogram relative to the isotype control demonstrates specific detection of ALDH2 expression in A549 cells. These results support the utility of ALDH2 Antibody for studies of aldehyde metabolism, mitochondrial function, oxidative stress responses, and cellular detoxification pathways.



ALDH2 Antibody Human Cell Line Panel WB. Western blot analysis of ALDH2 expression was performed using anti-ALDH2 antibody in multiple human cell and tissue lysates. Lane 1: HepG2 lysate. Lane 2: placenta lysate. Lane 3: HEK293 lysate. Lane 4: SHG-44 lysate. Lane 5: THP-1 lysate. ALDH2, also known as Aldehyde Dehydrogenase 2, is a mitochondrial enzyme that detoxifies reactive aldehydes generated during alcohol metabolism, lipid peroxidation, and oxidative stress. A prominent immunoreactive band is detected at approximately 56 kDa in all samples, corresponding to the predicted molecular weight of ALDH2. The broad expression pattern observed across hepatic, placental, neuronal, and monocytic-derived samples is consistent with the widespread requirement for mitochondrial aldehyde detoxification and cellular protection from oxidative damage. These results support the utility of ALDH2 Antibody for studies of aldehyde metabolism, mitochondrial function, oxidative stress responses, and cellular detoxification pathways.



ALDH2 Antibody Rodent Tissue Panel WB. Western blot analysis of ALDH2 expression was performed using anti-ALDH2 antibody in rat and mouse tissue lysates. Lane 1: rat liver lysate. Lane 2: rat kidney lysate. Lane 3: rat heart lysate. Lane 4: mouse liver lysate. Lane 5: mouse kidney lysate. ALDH2, also known as Aldehyde Dehydrogenase 2, is a mitochondrial enzyme responsible for the oxidation and detoxification of reactive aldehydes generated during alcohol metabolism, lipid peroxidation, and oxidative stress. A prominent immunoreactive band is detected at approximately 56 kDa in all samples, corresponding to the predicted molecular weight of ALDH2. Strong expression across liver, kidney, and heart tissues is consistent with the essential role of ALDH2 in mitochondrial detoxification and metabolic homeostasis within highly active organs. These results support the utility of ALDH2 Antibody for studies of aldehyde metabolism, mitochondrial function, oxidative stress responses, and tissue protection mechanisms.



ALDH2 Antibody Human A431 IF. Immunofluorescent staining of FFPE human A431 cells with ALDH2 antibody revealed strong cytoplasmic staining with a finely granular distribution consistent with mitochondrial localization. ALDH2, also known as Aldehyde Dehydrogenase 2, is a mitochondrial detoxification enzyme that catalyzes the oxidation of reactive aldehydes generated during alcohol metabolism, lipid peroxidation, and oxidative stress. Green fluorescence indicates ALDH2 expression, while nuclei are counterstained with DAPI (blue). The predominantly cytoplasmic staining pattern is consistent with the known mitochondrial localization of ALDH2 and its essential role in maintaining cellular metabolic homeostasis and protection against aldehyde-induced damage. These results support the utility of ALDH2 Antibody for studies of aldehyde metabolism, mitochondrial function, oxidative stress responses, and cellular detoxification pathways.

Description

ALDH2 Antibody / Mitochondrial Detoxification Enzyme Antibody recognizes aldehyde dehydrogenase 2 (ALDH2), a mitochondrial enzyme that plays a central role in cellular detoxification and metabolic homeostasis. ALDH2 catalyzes the oxidation of aldehydes to their corresponding carboxylic acids, thereby eliminating potentially toxic intermediates generated during normal metabolism and oxidative stress. The enzyme is best known for its role in converting acetaldehyde, a toxic byproduct of ethanol metabolism, into acetate. However, ALDH2 also detoxifies a broad range of endogenous aldehydes produced through lipid peroxidation and cellular injury. This mouse monoclonal antibody clone 5G7 provides specific detection of ALDH2 in a variety of research applications.

ALDH2 is highly expressed in metabolically active tissues including liver, heart, kidney, skeletal muscle, and brain, where mitochondrial integrity is essential for normal cellular function. By removing reactive aldehydes, ALDH2 protects proteins, nucleic acids, and membrane lipids from damage. This detoxification activity helps maintain mitochondrial function and prevents accumulation of oxidative stress-related byproducts. ALDH2 Antibody / Mitochondrial Detoxification Enzyme

Antibody is useful for studying pathways involved in cellular defense, energy metabolism, and mitochondrial homeostasis. Increasing evidence suggests that ALDH2 also contributes to protection against ischemic injury and other stress-induced cellular insults.

Genetic variation in ALDH2 has significant clinical relevance. The ALDH2*2 variant, common in East Asian populations, markedly reduces enzymatic activity and results in impaired acetaldehyde metabolism. Individuals carrying this variant often experience alcohol flushing and may exhibit altered susceptibility to cardiovascular disease, cancer, and metabolic disorders. Beyond alcohol metabolism, reduced ALDH2 activity has been associated with increased oxidative stress, mitochondrial dysfunction, and tissue injury. ALDH2 Antibody / Mitochondrial Detoxification Enzyme Antibody is therefore valuable for investigations of genetic variation, toxicology, and mechanisms underlying oxidative damage.

ALDH2 has also emerged as an important factor in cardiovascular biology, neurodegeneration, aging, and cancer research. Reactive aldehydes generated during oxidative stress contribute to many chronic diseases, and ALDH2-mediated detoxification can influence disease progression and therapeutic response. Pharmacologic activation of ALDH2 is being explored as a potential strategy for reducing tissue injury and improving mitochondrial function. ALDH2 Antibody / Mitochondrial Detoxification Enzyme Antibody supports studies of aldehyde metabolism, oxidative stress, mitochondrial biology, toxicology, and disease pathogenesis. Researchers frequently use ALDH2 Antibody / Mitochondrial Detoxification Enzyme Antibody to examine detoxification pathways, cellular stress responses, and mechanisms that preserve tissue function under physiologic and pathologic conditions.

Learn more about enzymes involved in cellular metabolism, mitochondrial function, and oxidative stress responses on our Metabolism Antibodies page.

Application Notes

Optimal dilution of the ALDH2 Antibody / Mitochondrial Detoxification Enzyme Antibody should be determined by the researcher.

Immunogen

Amino acids SAAATQAVPAPNQQPEVFCNQIFINNEWHDA were used as the immunogen for the ALDH2 antibody.

Storage

After reconstitution, the ALDH2 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

ALDH2 antibody, Aldehyde Dehydrogenase 2 antibody, Mitochondrial ALDH antibody, Acetaldehyde Dehydrogenase antibody, ALDH-E2 antibody, Mitochondrial Detoxification Enzyme antibody

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