abcam

ab185208

Anti-ALDH4A1/P5CDH antibody [EPR14287]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.1% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR14287
Purification technique	Affinity purification Protein A
Concentration	0.876 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/250
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human

Dilution info	1/160
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/100 - 1/250
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/100 - 1/250
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Predicted

Species	Rat
Dilution info	-
Notes	-

Target data

See full target information ALDH4A1

Function	Irreversible conversion of delta-1-pyrroline-5-carboxylate (P5C), derived either from proline or ornithine, to glutamate. This is a necessary step in the pathway interconnecting the urea and tricarboxylic acid cycles. The preferred substrate is glutamic gamma-semialdehyde, other substrates include succinic, glutaric and adipic semialdehydes.

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	ALDH4A1 also known as P5CDH is an enzyme responsible for catalyzing the conversion of pyrroline-5-carboxylate to glutamate in the mitochondria. It has a molecular mass of approximately 65 kDa and plays an essential role in the proline degradation pathway. The enzyme is primarily expressed in the liver kidney and muscle tissues where it supports the metabolism of amino acids and energy production.
Biological function summary	ALDH4A1 is involved in the L-proline degradation pathway converting substrates to downstream metabolic intermediates. While it operates mainly as an individual enzyme it facilitates the integration of amino acid metabolism with cellular energy cycles. A deficiency in ALDH4A1 activity disrupts normal nitrogen balance and mitochondrial function illustrating its relevance to cellular homeostasis.
Pathways	ALDH4A1 plays a significant role in the urea cycle and the proline degradation pathway. It interacts with enzymes like delta-1-pyrroline-5-carboxylate synthetase which provides substrates for its enzymatic activity. These interactions are important for maintaining nitrogen homeostasis and chemical energy balance within cells highlighting its contributions to metabolic circuits.
Associated diseases and disorders	Mutations and deficiencies in ALDH4A1 lead to hyperprolinemia type II and can contribute to neurological issues. The protein interacts with other cellular components such as ALDH3A2 which also participates in detoxifying reactive aldehydes. Abnormal ALDH4A1 function can exacerbate proline accumulation and neurotoxic effects in affected individuals making it a significant focus for understanding metabolic disorders.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

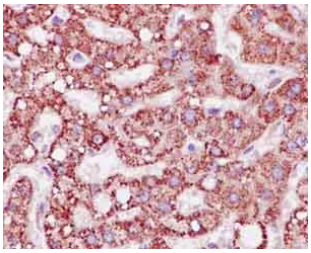
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

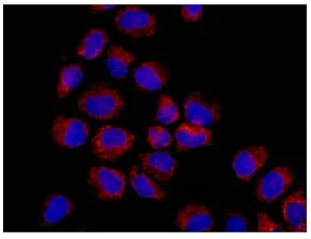
6 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ALDH4A1/P5CDH antibody [EPR14287] (ab185208)

ALDH4A1/P5CDH Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ALDH4A1/P5CDH antibody

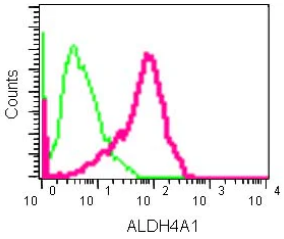
Immunohistochemical analysis of paraffin-embedded Human liver tissue labeling ALDH4A1/P5CDH with ab185208 at 1/250 dilution. Counter stain Hematoxylin.
Perform heat mediated antigen retrieval with EDTA buffer pH 9 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-ALDH4A1/P5CDH antibody [EPR14287] (ab185208)

ALDH4A1/P5CDH Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-ALDH4A1/P5CDH antibody

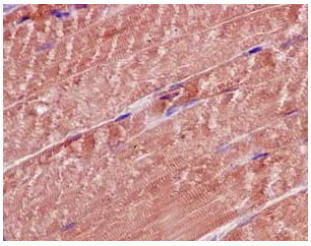
Immunofluorescent analysis of -20°C acetone fixed HeLa cells labeling ALDH4A1/P5CDH with ab185208 at 1/250 dilution (red). Secondary antibody: Goat anti rabbit IgG (Alexa Fluor®555) at a 1/200 dilution. Counterstained with Dapi (blue).



Flow Cytometry (Intracellular) - Anti-ALDH4A1/P5CDH antibody [EPR14287] (ab185208)

ALDH4A1/P5CDH Flow Cytometry (Intracellular) staining using rabbit Anti-ALDH4A1/P5CDH antibody

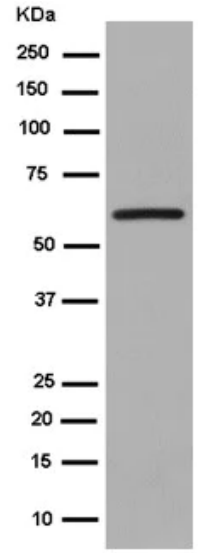
Intracellular flow cytometric analysis of 2% paraformaldehyde fixed HepG2 cells labeling ALDH4A1/P5CDH with ab185208 at 1/160 dilution (red), or a rabbit IgG isotype control (green), followed by secondary goat anti rabbit IgG (FITC) at 1/150 dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ALDH4A1/P5CDH antibody [EPR14287] (ab185208)

ALDH4A1/P5CDH Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ALDH4A1/P5CDH antibody

Immunohistochemical analysis of paraffin-embedded Mouse skeletal muscle tissue labeling ALDH4A1/P5CDH with ab185208 at 1/250 dilution. Counter stain Hematoxylin.
Perform heat mediated antigen retrieval with EDTA buffer pH 9 before commencing with IHC staining protocol.



Western blot - Anti-ALDH4A1/P5CDH antibody [EPR14287] (ab185208)

ALDH4A1/P5CDH Western blot staining of HepG2 cell lysate using rabbit Anti-ALDH4A1/P5CDH antibody

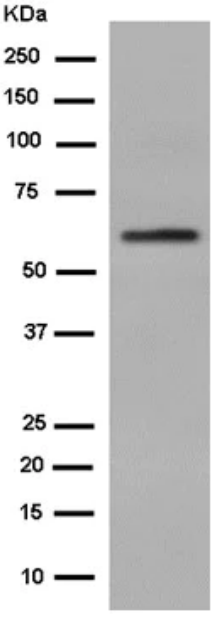
All lanes:
Western blot - Anti-ALDH4A1/P5CDH antibody [EPR14287] (ab185208) at 1/5000 dilution

All lanes:
HepG2 cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 62 kDa



Western blot - Anti-ALDH4A1/P5CDH antibody [EPR14287] (ab185208)

ALDH4A1/P5CDH Western blot staining of Human fetal heart using rabbit Anti-ALDH4A1/P5CDH antibody

All lanes:
Western blot - Anti-ALDH4A1/P5CDH antibody [EPR14287] (ab185208) at 1/1000 dilution

All lanes:
Human fetal heart at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 62 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.