abcam

ab250807

Anti-ALDH4A1/P5CDH antibody [EPR14287] - BSA and Azide free

Recombinant RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR14287
Purification technique	Affinity purification Protein A
Concentration	1.054 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
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	-
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

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	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab250807 is the carrier-free version of ab185208.

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.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility

This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

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

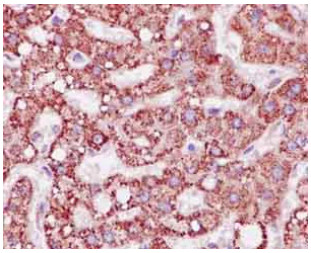
We do not recommend this combination. It is not covered by our product promise.

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

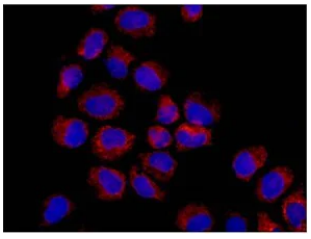


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ALDH4A1/P5CDH antibody [EPR14287] - BSA and Azide free (ab250807)

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

This data was developed using ab185208, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded Human liver tissue labeling ALDH4A1/P5CDH with ab185208 at 1/250 dilution. Counter stain Hematoxylin.

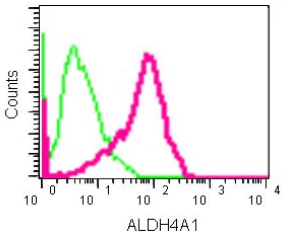
Perform heat mediated antigen retrieval with EDTA buffer pH 9 before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-ALDH4A1/P5CDH antibody [EPR14287] - BSA and Azide free (ab250807)

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

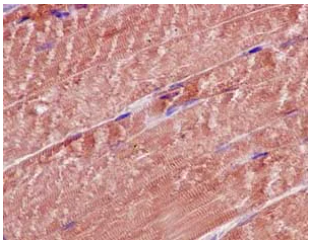
This data was developed using ab185208, the same antibody clone in a different buffer formulation.
Immunofluorescent analysis of -20°C acetone fixed HeLa cells labeling ALDH4A1/P5CDH with ab185208 at 1/250 dilution (red). Secondary antibody: Goat anti rabbit IgG (Alexa Fluor®555) at a 1/200 dilution. Counterstained with Dapi (blue).



Flow Cytometry (Intracellular) - Anti-ALDH4A1/P5CDH antibody [EPR14287] - BSA and Azide free (ab250807)

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

This data was developed using ab185208, the same antibody clone in a different buffer formulation.
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.

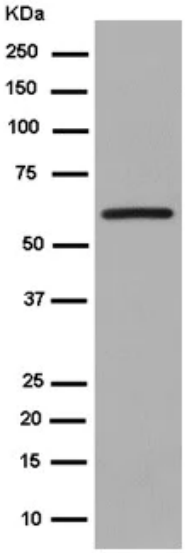


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ALDH4A1/P5CDH antibody [EPR14287] - BSA and Azide free (ab250807)

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

This data was developed using ab185208, the same antibody clone in a different buffer formulation.
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] - BSA and Azide free (ab250807)

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

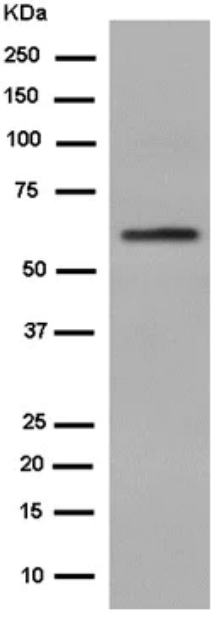
This data was developed using ab185208, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-ALDH4A1/P5CDH antibody [EPR14287] (ab185208) at 1/5000 dilution

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] - BSA and Azide free (ab250807)

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

This data was developed using ab185208, the same antibody clone in a different buffer formulation.
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'.