abcam

ab176835

Anti-PDHA1 antibody [EPR11098] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR11098
Purification technique	Affinity purification Protein A
Concentration	1.013 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-

Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Expected

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

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information PDHA1

Function Together with PDHB forms the heterotetrameric E1 subunit of the pyruvate dehydrogenase (PDH) complex (PubMed:17474719, PubMed:19081061). The PDH complex catalyzes the overall conversion of pyruvate to acetyl-CoA and CO(2), and thereby links cytoplasmic glycolysis and the mitochondrial tricarboxylic acid (TCA) cycle (PubMed:19081061, PubMed:7782287). It contains multiple copies of three enzymatic components: pyruvate dehydrogenase (E1), dihydrolipoamide acetyltransferase (E2) and dihydrolipoamide dehydrogenase (E3) (Probable). The E1 subunit catalyzes both the thiamine pyrophosphate (TPP)-dependent decarboxylation of pyruvate and the reductive acetylation of a lipoyl group covalently linked to the lipoyl-bearing domains of E2 (PubMed:17474719, PubMed:19081061, PubMed:7782287).

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

ab176835 is the carrier-free version of ab168379.

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	PDHA1 also known as the pyruvate dehydrogenase E1 alpha subunit plays a mechanical role in cellular metabolism. It forms part of the larger pyruvate dehydrogenase (PDH) complex where it serves as a critical catalytic component. PDHA1 is expressed ubiquitously across different tissue types reflecting its fundamental function in energy production. The molecular weight of the PDHA1 protein is approximately 43 kDa. Alternate names for this protein include the PDH E1 component and it partners closely with other components in the PDH complex to facilitate its role.

Biological function summary	PDHA1 engages in the conversion of pyruvate into acetyl-CoA an important step in cellular respiration. This protein is part of the PDH complex which consists of multiple copies of three catalytic and two regulatory subunits. The conversion process is essential for linking glycolysis to the citric acid cycle efficiently channeling energy substrates within the cell. Furthermore the functional activity of PDHA1 is regulated through phosphorylation by the pyruvate dehydrogenase kinases (PDKs) and dephosphorylation by PDH phosphatases.
Pathways	PDHA1 is integral to the metabolic pathway of cellular respiration and energy production. It enables the transition between glycolysis and the citric acid cycle by facilitating the conversion of pyruvate to acetyl-CoA which enters the citric acid cycle. Related proteins in this pathway include PDHA2 and the regulatory PDKs that modulate PDHA1 activity. These interactions ensure energy metabolism adapts to various cellular conditions influencing energy balance and substrate utilization.
Associated diseases and disorders	Mutations or dysfunctions in PDHA1 can lead to disorders such as pyruvate dehydrogenase deficiency and Leigh syndrome. These conditions result from impaired energy metabolism leading to severe neurological symptoms and overall energy deficits in tissues with high metabolic demands. The link between PDHA1 and diseases highlights the importance of maintaining its function. Additionally altered interaction with proteins involved in phosphorylation such as the PDKs can exacerbate pathogenic conditions by further disbalancing metabolic activities.

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

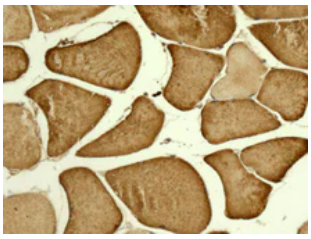
We do not recommend this combination. It is not covered by our product promise.

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.

11 product images

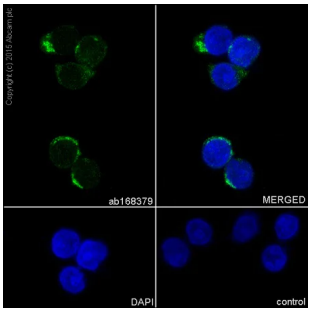


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

PDHA1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PDHA1 antibody

Immunohistochemical analysis of paraffin-embedded Human skeletal muscle tissue labeling PDHA1 with unpurified ab168379 at 1/100 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).

Heat mediated antigen retrieval was performed before commencing with IHC staining protocol.

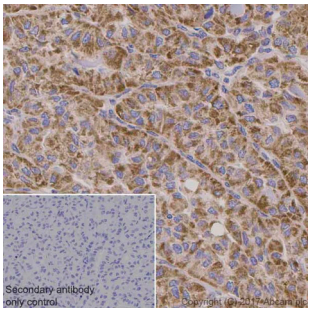


Immunocytochemistry/ Immunofluorescence - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

PDHA1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PDHA1 antibody

Immunocytochemistry/Immunofluorescence analysis Jurkat (human acute T cell leukemia) labelling PDHA1 with purified ab168379 at 1/500. Cells were fixed with 100% methanol. An Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody (ab150077). Nuclei counterstained with DAPI (blue).
Control: PBS only

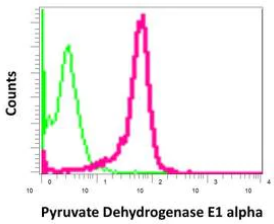
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

PDHA1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PDHA1 antibody

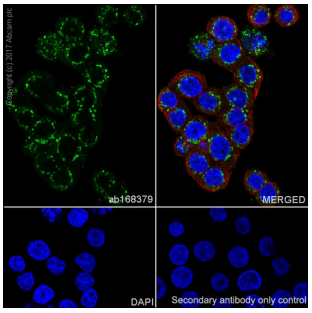
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human thyroid carcinoma tissue sections labeling PDHA1 with Purified ab168379 at 1:200 dilution (1.76 µg/ml). Heat mediated antigen retrieval was performed using EDTA Buffer, pH9.0. Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).



Flow Cytometry (Intracellular) - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

PDHA1 Flow Cytometry (Intracellular) staining using rabbit Anti-PDHA1 antibody

Intracellular flow cytometric analysis of permeabilized Jurkat cells labeling PDHA1 (red) with unpurified ab168379 at 1/10 dilution, or a rabbit IgG (negative) (green).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).

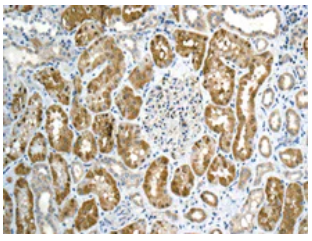


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

PDHA1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PDHA1 antibody

Immunocytochemistry/ Immunofluorescence analysis of HT-29 (Human colorectal adenocarcinoma epithelial cell) cells labeling PDHA1 with Purified ab168379 at 1:100 dilution (3.5µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). ab150077 Goat anti rabbit IgG(Alexa Fluor® 488) was used as the secondary antibody at 1:1000 dilution. DAPI nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

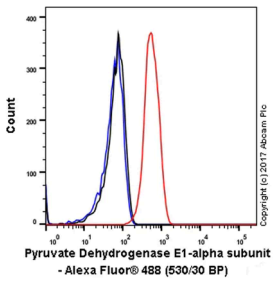


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

PDHA1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PDHA1 antibody

Immunohistochemical analysis of paraffin-embedded Human kidney tissue labeling PDHA1 with unpurified ab168379 at 1/100 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).

Heat mediated antigen retrieval was performed before commencing with IHC staining protocol.

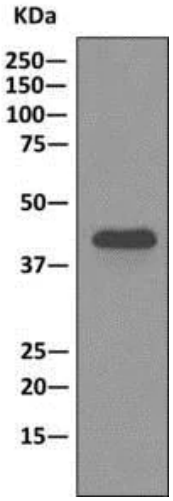


Flow Cytometry (Intracellular) - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

PDHA1 Flow Cytometry (Intracellular) staining using rabbit Anti-PDHA1 antibody

Intracellular Flow Cytometry analysis of Jurkat (Human T cell leukemia T lymphocyte) cells labeling PDHA1 with purified ab168379 at 1/40 dilution (10 ug/ml) (red). Cells were fixed with 4% Paraformaldehyde and permeabilized with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488)

secondary antibody was used at 1/2000 dilution. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue). This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).

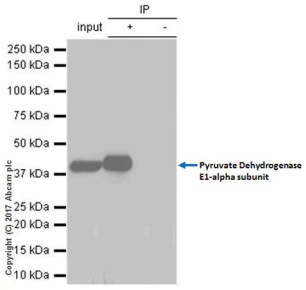


Immunoprecipitation - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

Detection of PDHA1 by Western Blot of Immunprecipitate. 293T cell lysate immunoprecipitated using unpurified ab168379 at 1/10 dilution; HRP-conjugated anti-rabbit IgG preferentially detecting the non-reduced form of rabbit IgG.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).

All lanes:
Immunoprecipitation - Anti-PDHA1 antibody [EPR11098] (ab168379)

Predicted band size: 43 kDa

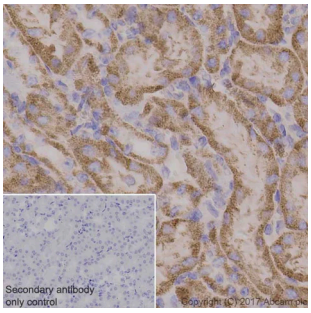


Immunoprecipitation - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

ab168379 (purified) at 1:20 dilution (2ug) immunoprecipitating PDHA1 in HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate.
Lane 1 (input): HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate 10ug
Lane 2 (+): ab168379 & HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab168379 in HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).

All lanes:
Immunoprecipitation - Anti-PDHA1 antibody [EPR11098] (ab168379)

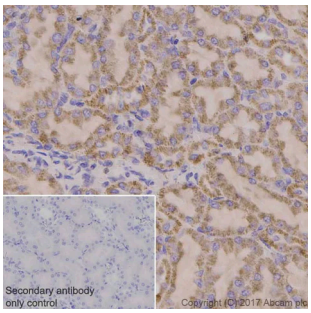
Predicted band size: 43 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

PDHA1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PDHA1 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse kidney tissue sections labeling PDHA1 with Purified ab168379 at 1:200 dilution (1.76 µg/ml). Heat mediated antigen retrieval was performed using EDTA Buffer, pH9.0. Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PDHA1 antibody [EPR11098] - BSA and Azide free (ab176835)

PDHA1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PDHA1 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat kidney tissue sections labeling PDHA1 with Purified ab168379 at 1:200 dilution (1.76 µg/ml). Heat mediated antigen retrieval was performed using EDTA Buffer, pH9.0. Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab168379).

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