abcam

ab110332

Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11]

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	15D3G9C11
Purity	IgG fraction
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	ab110332 was produced in vitro using hybridomas grown in serum-free medium, and then purified by biochemical fractionation.

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	Perform heat-mediated antigen retrieval via the pressure cooker method before commencing with IHC staining protocol.

Flow Cyt

Tested

Species	Human
Dilution info	1 µg/mL
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	0.5 µg/mL
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	0.2-0.5 µg/mL
Notes	(heat-induced antigen-retrieval improvessignal).

IP

Tested

Species	Human
Dilution info	2 µg
Notes	-

Target data

See full target information DLAT

Function	The pyruvate dehydrogenase (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 (Probable). It contains multiple copies of three enzymatic components: pyruvate dehydrogenase (E1), dihydrolipoamide acetyltransferase (E2) and dihydrolipoamide dehydrogenase (E3); (Probable). Within this complex, the catalytic function of this enzyme is to accept, and to transfer to coenzyme A, acetyl groups from acetyl-lipoyl moiety generated by the pyruvate dehydrogenase, leading to acetyl-CoA formation (Probable).

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

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

Supplementary info

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

Activity summary	Pyruvate Dehydrogenase E2 (PDH-E2) also referred to as PDC-E2 or E2 protein is a central component of cellular metabolism. It is the inner core dihydrolipoamide acetyltransferase component of the pyruvate dehydrogenase complex. PDH-E2 facilitates the conversion of pyruvate to acetyl-CoA which is an important step in aerobic respiration. The E2 protein is expressed in the mitochondria where it actively engages in its enzymatic roles. With a molecular weight of approximately 55 kDa PDH-E2 functions through its interaction with other components of the pyruvate dehydrogenase complex.
Biological function summary	PDH-E2 plays a significant role in cellular energy production. It is an important part of the pyruvate dehydrogenase complex where its coordinated enzymatic activity drives the decarboxylation of pyruvate. This activity supplies acetyl-CoA for

	the citric acid cycle essential for ATP production. PDH-E2's function regulates the flow of carbon within cells linking glycolysis and the citric acid cycle making it essential for energy homeostasis. Its function integrates signals that regulate metabolic pathways helping maintain cellular energy balance.
Pathways	PDH-E2 integrates the glycolysis and citric acid cycle facilitating efficient energy production. It interacts with tightly linked enzymes in the pyruvate dehydrogenase complex important for catalyzing the conversion processes. Key related proteins include pyruvate dehydrogenase (E1) and dihydrolipoamide dehydrogenase (E3) which form the complex alongside E2. This complex is also critical in adjusting metabolic responses based on cellular energy needs efficiently managing substrate flux into the mitochondria.
Associated diseases and disorders	Dysfunctional PDH-E2 activity associates with metabolic conditions like pyruvate dehydrogenase deficiency and primary biliary cholangitis (PBC). PDH deficiency leads to lactic acidosis and neurological dysfunction due to impaired energy production. In PBC the immune system aberrantly targets the E2 component causing liver damage and leading to cholestasis. These diseases highlight the critical role of PDH-E2 and its interaction with other mitochondrial proteins in maintaining metabolic health.

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

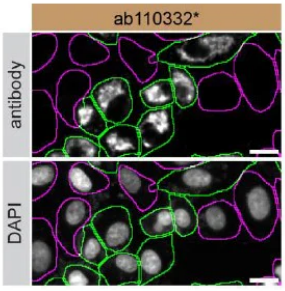
We do not recommend this combination. It is not covered by our product promise.

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.

10 product images

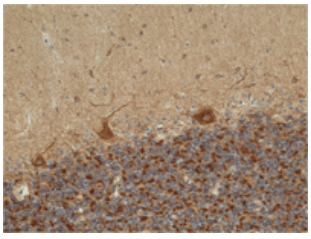


Immunocytochemistry/ Immunofluorescence - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

Pyruvate Dehydrogenase E2 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Pyruvate Dehydrogenase E2 antibody

ab110332 was shown to react with DLAT in wild-type A549 cells in immunocytochemistry with loss of signal observed in DLAT knockout cell line ab300919. Wild-type and knockout cells were mixed and pelleted at a 1:1 ratio on coverslips. The cells were fixed with 4% paraformaldehyde (15 min) then permeabilized with 0.1% Triton X-100 (10min) and then blocked with 1x PBS, 0.01% Triton X-100, 5% BSA, 5% NGS. The cells were then incubated with ab110332 at 1/1000 dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a goat anti-rabbit secondary antibody to (Alexa Fluor® 555) at 0.5 µg/ml. Acquisition of the green (wild-type), red (antibody staining) and far-red (knockout) channels was performed. Representative grayscale images of the red channel are shown. Wild-type and knockout cells are outlined with yellow and magenta dashed line, respectively. Schematic representation of the mosaic strategy used is shown on the bottom-right panel. Image was acquired with a Zeiss(LSM-880).

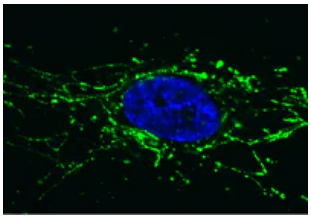
This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

Pyruvate Dehydrogenase E2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Pyruvate Dehydrogenase E2 antibody

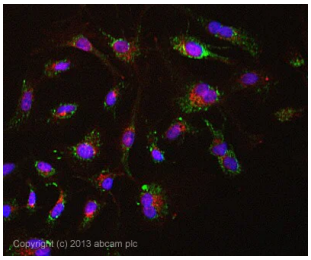
Immunohistological analysis using ab110332 at 1/100 dilution staining Pyruvate Dehydrogenase E2 in Human cerebellum tissue (Formalin-fixed, Paraffin-embedded).



Immunocytochemistry/ Immunofluorescence - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

Pyruvate Dehydrogenase E2 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Pyruvate Dehydrogenase E2 antibody

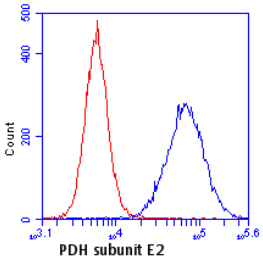
Immunocytochemistry analysis using ab110332 at 1µg/ml staining Pyruvate Dehydrogenase E2 in cultured, normal Human embryonic lung fibroblasts (strain MRC5) and an AlexaFluor® 488 goat anti-mouse IgG1 secondary antibody (2 ug/ml).



Immunocytochemistry/ Immunofluorescence - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

Pyruvate Dehydrogenase E2 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-Pyruvate Dehydrogenase E2 antibody

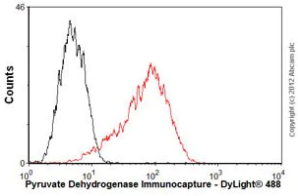
ICC/IF image of ab109866 stained HepG2 cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody ab109866 at 10µg/ml overnight at +4°C. The secondary antibody (green) was DyLight® 488 goat anti- mouse (ab96879) IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



Flow Cytometry - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

Pyruvate Dehydrogenase E2 Flow Cytometry staining using mouse Anti-Pyruvate Dehydrogenase E2 antibody

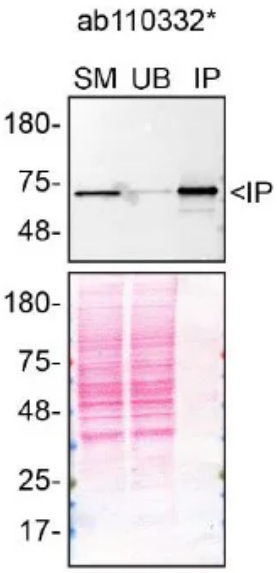
Flow cytometric analysis using ab110332 at 1µg/ml staining Pyruvate Dehydrogenase E2 in HL60 cells (blue). Isotype control antibody (red).



Flow Cytometry - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

Pyruvate Dehydrogenase E2 Flow Cytometry staining using mouse Anti-Pyruvate Dehydrogenase E2 antibody

ICC/IF image of ab109866 stained HepG2 cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody ab109866 at 10µg/ml overnight at +4°C. The secondary antibody (green) was DyLight® 488 goat anti- mouse (ab96879) IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



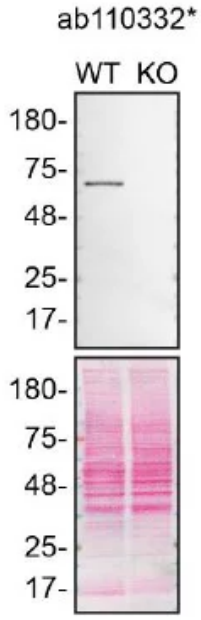
Immunoprecipitation - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

Immunoprecipitation of DLAT in A549 cells. Lysates were prepared and immunoprecipitation was performed using 2 µg of ab110332 pre-coupled to Protein A beads. Samples were then washed and processed for western blot.

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Immunoprecipitation - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332) at 2 µg

All lanes:
A549 cell lysates

Observed band size: 70 kDa



Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

Pyruvate Dehydrogenase E2 Western blot staining using mouse Anti-Pyruvate Dehydrogenase E2 antibody

ab110332 was shown to react with DLAT in wild-type A549 cells in Western blot with loss of signal observed in DLAT knockout cell line ab300919. Wild-type A549 and DLAT knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab110332 overnight at 4 °C at a 1/2000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

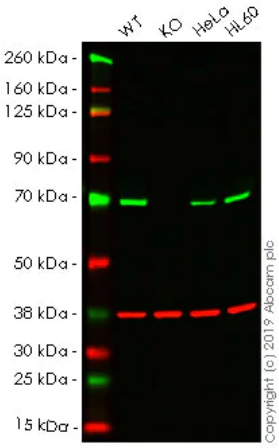
This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332) at 1/2000 dilution

Lane 1:
Wild-type A549 lysate at 30 µg

Lane 2:
DLAT knock-out A549 lysate at 30 µg

Lane 2:
Western blot - Human DLAT knockout A549 cell line (ab300919)

Observed band size: 70 kDa



Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

Pyruvate Dehydrogenase E2 Western blot staining using mouse Anti-Pyruvate Dehydrogenase E2 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab110332 observed at 72 kDa. Red - loading control, ab181602, observed at 38 kDa.
ab110332 was shown to specifically react with in wild-type HAP1 cells as signal was lost in DLAT knockout cells. Wild-type and DLAT knockout samples were subjected to SDS-PAGE. The membrane was blocked with 3% Milk. ab110332 and ab181602 (Rabbit anti-GAPDH loading control) were incubated overnight at 4°C at 0.5 µg/ml and 1/20000 dilution respectively. Blots were developed with Goat anti-Mouse IgG H&L (IRDye® 800CW) preabsorbed ab216772 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed ab216776 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332) at 0.5 µg

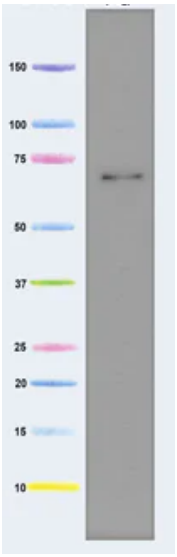
Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

Lane 2:
DLAT knockout HAP1 whole cell lysate at 20 µg

Lane 3:
HeLa whole cell lysate at 20 µg

Lane 4:
HL-60 whole cell lysate at 20 µg

Predicted band size: 69 kDa



Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332)

All lanes:
Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [15D3G9C11] (ab110332) at 0.5 µg/mL

All lanes:
Isolated mitochondria from Human heart at 5 µg

Predicted band size: 69 kDa

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