abcam

ab240168

Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free

Recombinant | RabMAb | KO Validated

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	EPR12455(B)
Purification technique	Affinity purification Protein A
Concentration	0.971 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

Not recommended

Species	Transfected cell lysate
Dilution info	-
Notes	-

WB

Tested

Species	Human, Transfected cell lysate, Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat, Transfected cell lysate
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.

Expected

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

Not recommended

Species	Transfected cell lysate
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell lysate
Dilution info	-
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

ab240168 is the carrier-free version of ab172617.

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	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.

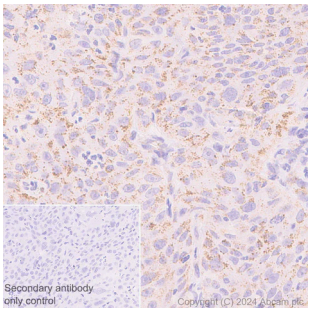
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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15 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

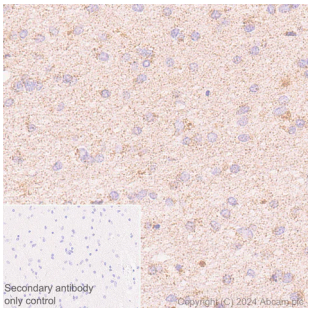
This data was developed using ab172617, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded human cervical cancer labeling Pyruvate Dehydrogenase E2 with ab172617 at 1/1000 dilution, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Positive staining on human cervical cancer.
The section was incubated with ab172617 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

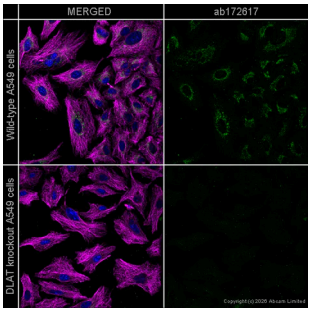
This data was developed using ab172617, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded human cerebrum labeling Pyruvate Dehydrogenase E2 with ab172617 at 1/1000 dilution, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Positive staining on human cerebrum.
The section was incubated with ab172617 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

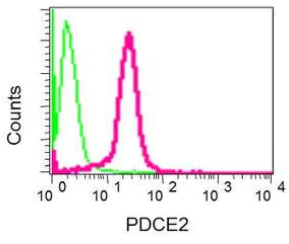
Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



Immunocytochemistry/ Immunofluorescence - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

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

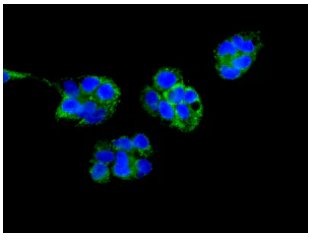
This data was developed using ab172617, the same antibody clone in a different buffer formulation.
ab172617 staining Pyruvate Dehydrogenase E2 in A549 (positive) and A549-DLAT (negative) cells. The cells were fixed with 100% methanol (5 min), permeabilized with 0.1% PBS-Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1%PBS-Tween for 1h. The cells were then incubated for 2 hours at room temperature with ab172617 at 1 ug/ml (shown in green) and ab7291, Anti-alpha Tubulin antibody [DM1A] - Loading Control (shown in pseudocolour magenta). Cells were then incubated with ab150081, Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution and ab150119, Goat Anti-Mouse IgG H&L (Alexa Fluor® 647) preadsorbed at 1/1000 dilution for 1 hour at room temperature. Nuclear DNA was labeled with DAPI (shown in blue). Also suitable in cells fixed with 4% paraformaldehyde (10 min). Image was acquired with a high-content analyser (Operetta CLS, Revvity) and a maximum intensity projection of confocal sections is shown.



Flow Cytometry (Intracellular) - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

Pyruvate Dehydrogenase E2 Flow Cytometry (Intracellular) staining using rabbit Anti-Pyruvate Dehydrogenase E2 antibody

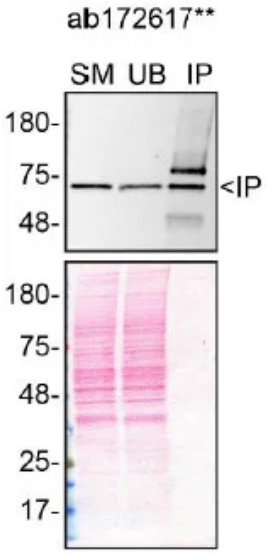
Intracellular flow cytometric analysis of permeabilized Jurkat cells labeling Pyruvate Dehydrogenase E2 with ab172617 at 1/10 dilution (red), compared to a rabbit IgG negative control (green).
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab172617).



Immunocytochemistry/ Immunofluorescence - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

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

Immunofluorescent analysis of HepG2 cells labeling Pyruvate Dehydrogenase E2 with ab172617 at 1/50 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab172617).



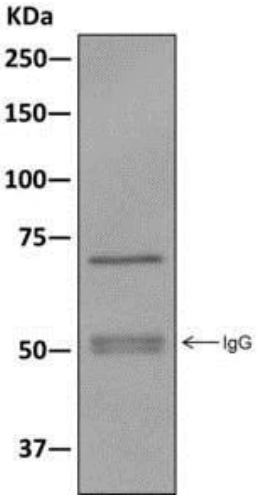
Immunoprecipitation - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

This data was developed using ab172617, the same antibody clone in a different buffer formulation.
Immunoprecipitation of DLAT in A549 cells. Lysates were prepared and immunoprecipitation was performed using 2 µg of ab172617 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 [EPR12455(B)] (ab172617) at 2 µg

All lanes:
A549 cells lysates

Observed band size: 68 kDa

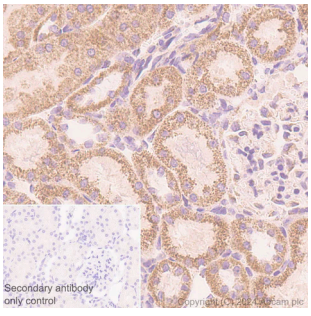


Immunoprecipitation - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

Western blot analysis on immunoprecipitation pellet from HepG2 cell lysate immunoprecipitated using ab172617 at 1/10 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab172617).

All lanes:
Immunoprecipitation - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] (ab172617)

Predicted band size: 69 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

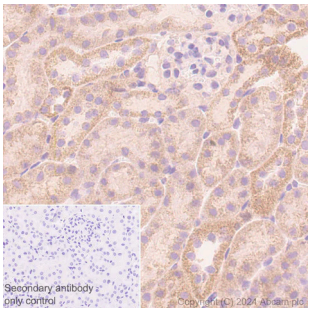
This data was developed using ab172617, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded rat kidney labeling Pyruvate Dehydrogenase E2 with ab172617 at 1/500 dilution, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Positive staining on rat kidney.
The section was incubated with ab172617 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

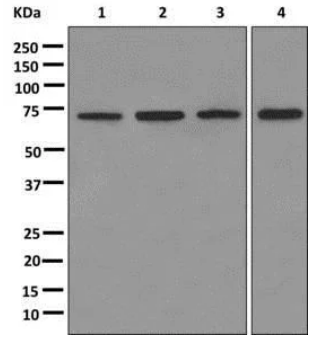
This data was developed using ab172617, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of paraffin-embedded mouse kidney labeling Pyruvate Dehydrogenase E2 with ab172617 at 1/500 dilution, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Positive staining on mouse kidney.
The section was incubated with ab172617 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

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

This data was developed using ab172617, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] (ab172617) at 1/1000 dilution

Lane 1:
HeLa cell lysate at 10 µg

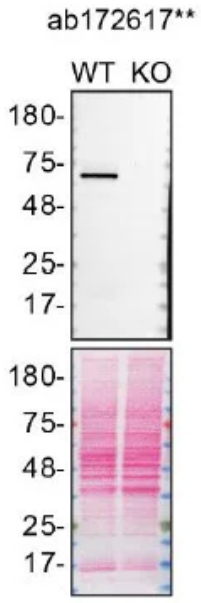
Lane 2:
HepG2 cell lysate at 10 µg

Lane 3:
Jurkat cell lysate at 10 µg

Lane 4:

293T cell lysate at 10 µg

Predicted band size: 69 kDa



Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

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

This data was developed using ab172617, the same antibody clone in a different buffer formulation.
ab172617 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 ab172617 overnight at 4 °C at a 1/1000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

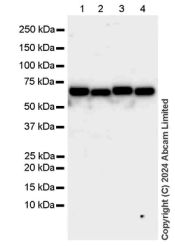
This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] (ab172617) at 1/1000 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: 68 kDa



Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

This data was developed using ab172617, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] (ab172617) at 1/1000 dilution

Lane 1:
C6 (rat glial tumor glial cell) whole cell lysate at 20 µg

Lane 2:
RAW 264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage) whole cell lysate at 20 µg

Lane 3:

PC-12 (rat adrenal gland pheochromocytoma cell) whole cell lysate at 20 µg

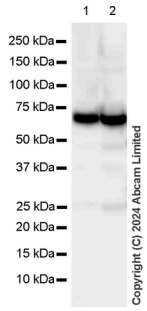
Lane 4:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 69 kDa

Exposure time: 48s



Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

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

This data was developed using ab172617, the same antibody clone in a different buffer formulation.
Blocking and diluting buffer and concentration: 5% NFDM/TBST.

All lanes:
Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] (ab172617) at 1/1000 dilution

Lane 1:
Rat brain tissue lysate at 20 µg

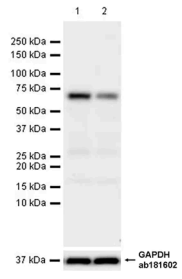
Lane 2:
Rat kidney tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 69 kDa

Exposure time: 15s



Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

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

This data was developed using ab172617, the same antibody clone in a different buffer formulation.
In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

All lanes:

Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] (ab172617) at 1/1000 dilution

Lane 1:
NIH/3T3 (mouse embryonic fibroblast) transfected with scrambled siRNA control whole cell lysate at 20 µg

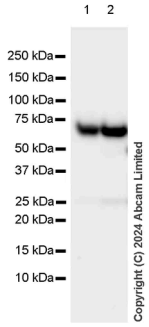
Lane 2:
NIH/3T3 transfected with siRNA specifically targeting Dlat-1 whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 69 kDa

Exposure time: 15s



Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] - BSA and Azide free (ab240168)

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

This data was developed using ab172617, the same antibody clone in a different buffer formulation.
Blocking and diluting buffer and concentration: 5% NFDM/TBST.

All lanes:
Western blot - Anti-Pyruvate Dehydrogenase E2 antibody [EPR12455(B)] (ab172617) at 1/1000 dilution

Lane 1:
Mouse brain tissue lysate at 20 µg

Lane 2:
Mouse kidney tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 69 kDa

Exposure time: 26s

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