abcam

ab316931

Anti-PPP1R1A antibody [EPR28192-90]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% 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	EPR28192-90
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	1/30
Notes	-

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

Target data

See full target information Ppp1r1a

Function	Inhibitor of protein-phosphatase 1. This protein may be important in hormonal control of glycogen metabolism. Hormones that elevate intracellular cAMP increase I-1 activity in many tissues. I-1 activation may impose cAMP control over proteins that are not directly phosphorylated by PKA. Following a rise in intracellular calcium, I-1 is inactivated by calcineurin (or PP2B). Does not inhibit type-2 phosphatases.

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	The protein phosphatase 1 regulatory inhibitor subunit 1A also known as PPP1R1A or inhibitor-1 (I-1) plays a significant role in cellular regulation as a phosphatase inhibitor. Mechanically it regulates the activity of protein phosphatase 1 (PP1) an essential enzyme in various cellular processes. Its molecular weight is approximately 19 kDa. PPP1R1A is expressed in many tissues showing notable levels in cardiac and skeletal muscle where it helps modulate responses to various stimuli.
Biological function summary	PPP1R1A modulates signaling pathways by influencing the dephosphorylation of substrates which is a critical step in signal transduction. It is not typically part of a complex but interacts closely with protein phosphatase 1. This interaction allows for the effective regulation of phosphorylation states within cells impacting cell cycle control muscle contraction glycogen metabolism and more. Its regulatory capabilities are important for maintaining cellular homeostasis.

Pathways

	The regulatory activities of PPP1R1A significantly impact the cAMP signaling pathway and the regulation of glycogen metabolism. Within the cAMP pathway PPP1R1A regulates the activity of PP1 influencing processes like muscle contraction and gene expression. It interacts with proteins such as PKA which phosphorylates PPP1R1A activating its inhibitory function. This regulation affects downstream cellular activities by modulating phosphorylation levels of key substrates within these pathways.
Associated diseases and disorders	Alterations in PPP1R1A expression or function have implications in cardiac diseases and diabetes. Increased or decreased activity of PPP1R1A can disrupt normal heart function due to its regulatory role in cardiac muscle contraction. Altered regulation within the cAMP and glycogen metabolism pathways can contribute to metabolic disorders like diabetes. Interactions with proteins such as PP1 and PKA are critical for these conditions highlighting PPP1R1A's role in disease progression and potential therapeutic targeting.

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

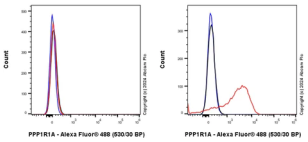
We do not recommend this combination. It is not covered by our product promise.

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.

8 product images

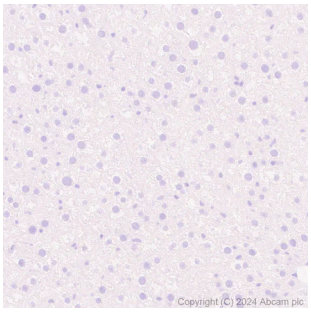


Flow Cytometry (Intracellular) - Anti-PPP1R1A antibody [EPR28192-90] (ab316931)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized RAW 264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage, Left) / Beta-TC-6 (mouse pancreas insulinoma beta cell, Right) cells labelling PPP1R1A with ab316931 at 1/500 dilution (0.1 ug)/Red (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue).

Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.

Negative control: RAW 264.7



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PPP1R1A antibody [EPR28192-90] (ab316931)

PPP1R1A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Mouse liver using rabbit Anti-PPP1R1A antibody

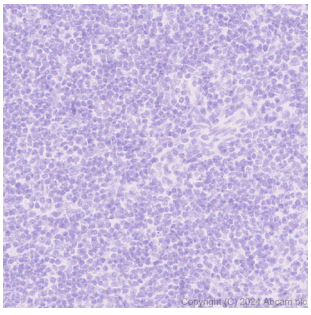
Immunohistochemical analysis of paraffin-embedded Mouse liver tissue labeling PPP1R1A with ab316931 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Negative control: no staining on mouse liver. The section was incubated with ab316931 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 LeicaDS9800 (Bond™ Polymer Refine Detection).

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-PPP1R1A antibody [EPR28192-90] (ab316931)

PPP1R1A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Mouse spleen using rabbit Anti-PPP1R1A antibody

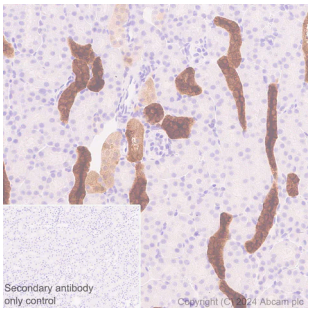
Immunohistochemical analysis of paraffin-embedded Mouse spleen tissue labeling PPP1R1A with ab316931 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Negative control: no staining on mouse spleen. The section was incubated with ab316931 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 LeicaDS9800 (Bond™ Polymer Refine Detection).

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-PPP1R1A antibody [EPR28192-90] (ab316931)

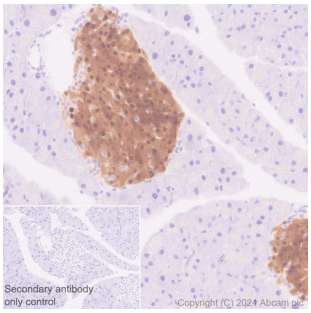
Immunohistochemical analysis of paraffin-embedded Mouse kidney tissue labeling PPP1R1A with ab316931 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on distal convoluted tubule in mouse kidney (PMID: 24231659). The section was incubated with ab316931 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 LeicaDS9800 (Bond™ Polymer Refine Detection).

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-PPP1R1A antibody [EPR28192-90] (ab316931)

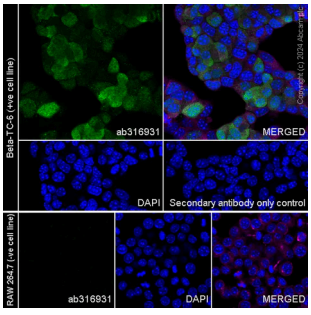
Immunohistochemical analysis of paraffin-embedded Mouse pancreas tissue labeling PPP1R1A with ab316931 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on islet of mouse pancreas (PMID: 23557701). The section was incubated with ab316931 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 LeicaDS9800 (Bond™ Polymer Refine Detection).

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



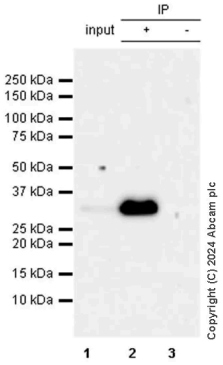
Immunocytochemistry/ Immunofluorescence - Anti-PPP1R1A antibody [EPR28192-90] (ab316931)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Beta-TC-6 (mouse pancreas insulinoma beta cell) cells labellingPPP1R1A with ab316931 at 1/500 (1.0 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 (2 ug/ml) dilution

Confocal image showing cytoplasmic with nuclear staining in Beta-TC-6 cell line (shown in green). The counterstain was observed in magenta. Nuclear DNA was labeled with DAPI (shown in blue).
Negative control: RAW 264.7 (PMID:29444892).
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 (2.5 ug/ml) dilution. The Nuclear counterstain was DAPI

Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 (2 ug/ml) dilution.



Immunoprecipitation - Anti-PPP1R1A antibody [EPR28192-90] (ab316931)

PPP1R1A was immunoprecipitated from 0.35 mg Beta-TC-6 (mouse pancreas insulinoma beta cell) whole cell lysate with ab316931 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab316931 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.

Lane 1: Beta-TC-6 (mouse pancreas insulinoma beta cell) whole cell lysate
Lane 2: ab316931 IP in Beta-TC-6 (mouse pancreas insulinoma beta cell) whole cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab316931 in Beta-TC-6 whole cell lysate

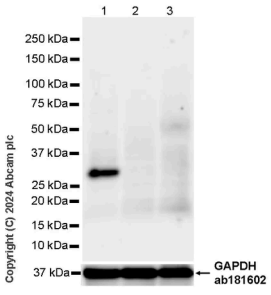
All lanes:
Immunoprecipitation - Anti-PPP1R1A antibody [EPR28192-90] (ab316931) at 1/30 dilution

All lanes:
Beta-TC-6 (mouse pancreas insulinoma beta cell) whole cell lysate

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Exposure time: 67s



Western blot - Anti-PPP1R1A antibody [EPR28192-90] (ab316931)

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

Negative control: RAW 264.7, MEF (PMID: 29444892).

ab181602 was used as a GAPDH loading control at 1/200000 dilution

All lanes:
Western blot - Anti-PPP1R1A antibody [EPR28192-90] (ab316931) at 1/1000 dilution

Lane 1:
Beta-TC-6 (mouse pancreas insulinoma beta cell) whole cell lysate at 40 µg

Lane 2:
RAW 264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage) whole cell lysate at 40 µg

Lane 3:
MEF (mouse embryo fibroblast) whole cell lysate at 40 µg

Secondary

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

Performed under reducing conditions.

Observed band size: 27 kDa

Exposure time: 37s

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