abcam

ab53315

Anti-PPP1CB antibody [EP1804Y]

Recombinant | RabMAb

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	EP1804Y
Purification technique	Affinity purification Protein A
Concentration	0.4 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/250
Notes	-

Expected

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

IP

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/50000
Notes	**For unpurified use at 1/10000 - 1/20000.**

Species	Rat
Dilution info	1/50000
Notes	**For unpurified use at 1/10000 - 1/20000.**

Species	Human
Dilution info	1/50000
Notes	**For unpurified use at 1/10000 - 1/20000.**

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20 - 1/50
Notes	ab172730 - 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	-

IHC-P

Tested

Species	Mouse
Dilution info	1/400
Notes	**For unpurified use at 1/250.**

Species	Rat
Dilution info	1/400
Notes	**For unpurified use at 1/250.**

Species	Human
Dilution info	1/400
Notes	**For unpurified use at 1/250.**

Target data

See full target information PPP1CB

Function	Protein phosphatase that associates with over 200 regulatory proteins to form highly specific holoenzymes which dephosphorylate hundreds of biological targets. Protein phosphatase (PP1) is essential for cell division, it participates in the regulation of glycogen metabolism, muscle contractility and protein synthesis. Involved in regulation of ionic conductances and long-term synaptic plasticity. Component of the PTW/PP1 phosphatase complex, which plays a role in the

control of chromatin structure and cell cycle progression during the transition from mitosis into interphase. In balance with CSNK1D and CSNK1E, determines the circadian period length, through the regulation of the speed and rhythmicity of PER1 and PER2 phosphorylation. May dephosphorylate CSNK1D and CSNK1E. Dephosphorylates the 'Ser-418' residue of FOXP3 in regulatory T-cells (Treg) from patients with rheumatoid arthritis, thereby inactivating FOXP3 and rendering Treg cells functionally defective (PubMed:23396208). Core component of the SHOC2-MRAS-PP1c (SMP) holophosphatase complex that regulates the MAPK pathway activation (PubMed:35768504, PubMed:35831509, PubMed:36175670). The SMP complex specifically dephosphorylates the inhibitory phosphorylation at 'Ser-259' of RAF1 kinase, 'Ser-365' of BRAF kinase and 'Ser-214' of ARAF kinase, stimulating their kinase activities (PubMed:35768504, PubMed:35831509, PubMed:36175670). The SMP complex enhances the dephosphorylation activity and substrate specificity of PP1c (PubMed:35768504, PubMed:36175670).

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, Stable for 12 months at -20°C

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.

Supplementary info

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

Activity summary	PPP1CB also known as Protein Phosphatase 1 Catalytic Subunit Beta is a member of the catalytic subunit of Protein Phosphatase 1 (PP1). It has an approximate mass of 37 kDa. PPP1CB is expressed in various tissues throughout the human body including the heart brain and skeletal muscle. This phosphatase is primarily involved in the dephosphorylation of proteins a critical function to regulate

	cellular processes. As a catalytic subunit PPP1CB mediates various signaling cascades by removing phosphate groups from target proteins.
Biological function summary	PPP1CB plays key roles in cell division signal transduction and muscle contraction. It acts as part of a larger complex interacting with a variety of regulatory proteins and substrates to fine-tune cellular activities. Through dephosphorylation PPP1CB aids in the transition between different phases of cell cycles impacting cellular growth and proliferation. It is also involved in glycogen metabolism where it removes phosphate groups from glycogen phosphorylase ensuring proper energy balance in cells.
Pathways	PPP1CB participates significantly in the TGF-beta signaling and Wnt signaling pathways. It interacts with several proteins such as SMADs in the TGF-beta pathway contributing to the regulation of transcription and cellular responses to growth factors. In the Wnt signaling pathway PPP1CB deactivates key kinase members thereby modulating cell fate decisions and embryonic development. These pathways underline the phosphate turnover that PPP1CB controls impacting various cellular functions.
Associated diseases and disorders	PPP1CB has been associated with cancer development and cardiovascular diseases. It contributes to oncogenesis when its regulatory role in cell cycle controls is disrupted leading to unchecked cell proliferation. Alterations in PPP1CB activity have also been linked to heart diseases where improper dephosphorylation affects muscle contraction and cardiac function. In cancer interactions with proteins such as PP2A alter the signaling balance while in heart disease proteins like PLN may connect to aberrant PPP1CB function emphasizing its critical role in maintaining cellular 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

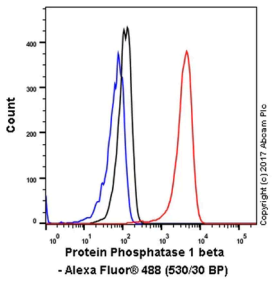
We do not recommend this combination. It is not covered by our product promise.

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.

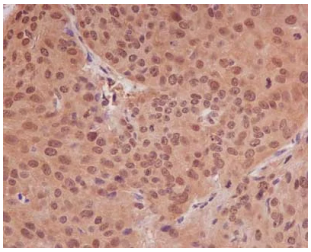
13 product images



Flow Cytometry (Intracellular) - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Flow Cytometry (Intracellular) staining using rabbit Anti-PPP1CB antibody

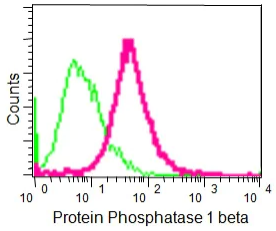
Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Protein phosphatase 1 beta with purified ab53315 at 1/40 dilution (10 ug/ml) (red). Cells were fixed with 4% Paraformaldehyde. A Goat anti rabbit IgG (Alexa Fluorr® 488) secondary antibody was used at 1/2000 dilution. Isotype control - 90% methanol. Unlabeled control - Rabbit monoclonal IgG (Black). Cell without incubation with primary antibody and secondary antibody (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PPP1CB antibody

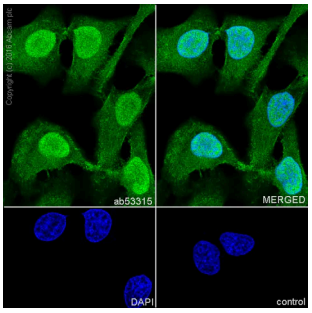
Immunohistochemical analysis of paraffin-embedded sections of Human cervical carcinoma labelling PPP1CB with unpurified ab53315 at 1/250 dilution. Prediluted ImmunoHistoprobe (ready to use) HRP Polymer for Rabbit IgG was used as a secondary antibody.
Counter stain = Hematoxylin. Heat mediated antigen retrieval using EDTA buffer at pH 9 was performed.



Flow Cytometry (Intracellular) - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Flow Cytometry (Intracellular) staining using rabbit Anti-PPP1CB antibody

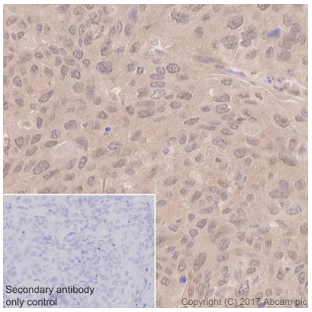
Flow Cytometry (Intracellular) analysis of HeLa cells labelling PPP1CB with unpurified ab53315 at 1/20 dilution. Goat anti rabbit IgG (H&L) (FITC) at 1/150 dilution was used as the secondary antibody. Isotype control = Rabbit monoclonal IgG. Fixative = 2% paraformaldehyde.



Immunocytochemistry/ Immunofluorescence - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PPP1CB antibody

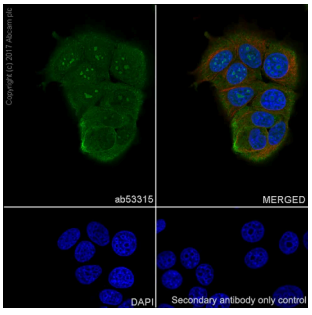
Unpurified ab53315 staining PPP1CB antibody in HeLa (human cervix adenocarcinoma) cells by ICC (Immunocytochemistry). Cells were fixed with 4% Paraformaldehyde and permeabilized with 0.1% Triton X-100. Samples were incubated with primary antibody at a dilution of 1/500. A goat anti rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody at 1/1000 dilution.
DAPI was used as a nuclear counterstain and the negative control was PBS only.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PPP1CB antibody

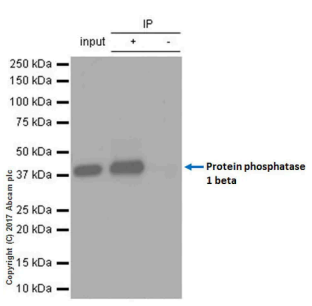
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human cervical carcinoma tissue sections labeling PPP1CB with purified ab53315 at 1/400 dilution (1 µg/ml). Heat mediated antigen retrieval was performed using EDTA Buffer, pH 9.0. Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used. PBS instead of the primary antibody was used as the negative control.



Immunocytochemistry/ Immunofluorescence - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PPP1CB antibody

Immunocytochemistry analysis of MCF-7 (Human breast adenocarcinoma epithelial cell) cells labeling PPP1CB with Purified ab53315 at 1:250 dilution (1.6 µg/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.



Immunoprecipitation - Anti-PPP1CB antibody [EP1804Y] (ab53315)

ab53315 (purified) at 1/100 dilution (2ug) immunoprecipitating Protein phosphatase 1 beta in Human fetal brain lysate.

Lane 1 (input): Human fetal brain lysate 10ug

Lane 2 (+): ab53315 & Human fetal brain lysate

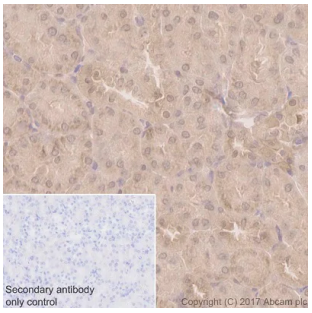
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab53315 in Human fetal brain lysate

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.
All lanes:
Immunoprecipitation - Anti-PPP1CB antibody [EP1804Y] (ab53315)

Predicted band size: 37 kDa

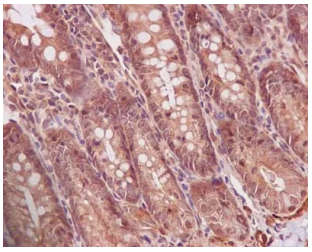
Observed band size: 38 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PPP1CB antibody

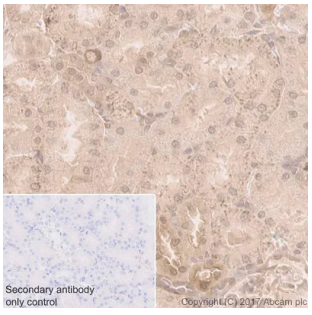
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Mouse kidney tissue sections labeling PPP1CB with purified ab53315 at 1/400 dilution (1 µg/ml). Heat mediated antigen retrieval was performed using EDTA Buffer, pH 9.0. Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used. PBS instead of the primary antibody was used as the negative control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PPP1CB antibody

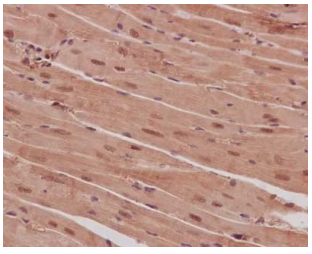
Immunohistochemical analysis of paraffin-embedded sections of rat colon labelling PPP1CB with unpurified ab53315 at 1/250 dilution. Prediluted ImmunoHistoprobe (ready to use) HRP Polymer for Rabbit IgG was used as a secondary antibody.
Counter stain = Hematoxylin. Heat mediated antigen retrieval using EDTA buffer at pH 9 was performed.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PPP1CB antibody

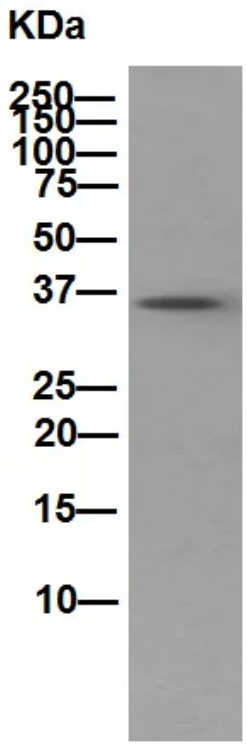
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Rat kidney tissue sections labeling PPP1CB with purified ab53315 at 1/400 dilution (1 µg/ml). Heat mediated antigen retrieval was performed using EDTA Buffer, pH 9.0. Tissue was counterstained with Hematoxylin. ImmunoHistoProbe one step HRP Polymer (ready to use) secondary antibody was used. PBS instead of the primary antibody was used as the negative control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PPP1CB antibody

Immunohistochemical analysis of paraffin-embedded sections of mouse cardiac muscle labelling PPP1CB with unpurified ab53315 at 1/250 dilution. Prediluted ImmunoHistoprobe (ready to use) HRP Polymer for Rabbit IgG was used as a secondary antibody.
Counter stain = Hematoxylin. Heat mediated antigen retrieval using EDTA buffer at pH 9 was performed.



Western blot - Anti-PPP1CB antibody [EP1804Y] (ab53315)

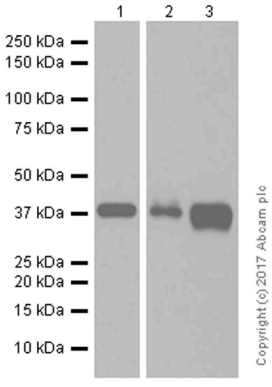
All lanes:
Western blot - Anti-PPP1CB antibody [EP1804Y] (ab53315) at 1/20000 dilution

All lanes:
Jurkat cells at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/1000 dilution

Predicted band size: 37 kDa



Western blot - Anti-PPP1CB antibody [EP1804Y] (ab53315)

PPP1CB Western blot staining using rabbit Anti-PPP1CB antibody

Blocking and diluting buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-PPP1CB antibody [EP1804Y] (ab53315) at 1/50000 dilution

Lane 1:
Jurkat (Human T cell leukemia T lymphocyte) whole cell lysates at 20 µg

Lane 2:
Mouse brain lysates at 20 µg

Lane 3:
Rat brain lysates at 20 µg

Secondary

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

Predicted band size: 37 kDa

Observed band size: 38 kDa

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