abcam

ab75856

Anti-PTP1B antibody [EP1841Y]

Recombinant | RabMAb | KO Validated

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	EP1841Y
Purification technique	Affinity purification Protein A
Specificity	ab75856 detects both phosphorylated and nonphosphorylated PTP1B.
Concentration	0.337 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/50 - 1/100
Notes	-

IP

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/2000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Target data

See full target information PTPN1

Function	Tyrosine-protein phosphatase which acts as a regulator of endoplasmic reticulum unfolded protein response. Mediates dephosphorylation of EIF2AK3/PERK;

inactivating the protein kinase activity of EIF2AK3/PERK. May play an important role in CKII- and p60c-src-induced signal transduction cascades. May regulate the EFNA5-EPHA3 signaling pathway which modulates cell reorganization and cell-cell repulsion. May also regulate the hepatocyte growth factor receptor signaling pathway through dephosphorylation of MET.

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	Stable for 12 months at -20°C

Notes

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

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	Protein tyrosine phosphatase 1B (PTP1B) is an enzyme involved in the dephosphorylation of tyrosine residues in proteins. Known also as PTPN1 this protein has a molecular weight of approximately 50 kDa. PTP1B is widely expressed in tissues but is highly present in the liver muscle and adipose tissue. It plays a critical role in regulating signal transduction pathways by removing phosphate groups from phosphotyrosine residues on target proteins. This action generally serves as a 'turn-off' switch for various signaling pathways.
Biological function summary	PTP1B plays important roles in glucose and lipid metabolism. It is not generally considered a part of a complex functioning instead as a singular enzyme. Its main action involves the negative regulation of the insulin signaling pathway by dephosphorylating the insulin receptor as well as its associated substrates. This regulation helps maintain normal levels of insulin sensitivity influencing cellular glucose uptake and metabolism.
Pathways	PTP1B has important functions in the insulin and leptin signaling pathways. It has a regulatory influence in these pathways affecting key metabolic processes. In the insulin signaling pathway PTP1B closely interacts with the insulin receptor as well as with insulin receptor substrates (IRS). Its dephosphorylating activity can lead to decreased insulin sensitivity. In the leptin pathway PTP1B modulates leptin signaling by dephosphorylating the Janus kinase 2 (JAK2) another protein involved in the control of energy balance and metabolism.
Associated diseases and disorders	Excessive activity of PTP1B links with disorders such as type 2 diabetes and obesity. Overactivity of PTP1B can lead to insulin resistance contributing to the pathogenesis of type 2 diabetes. In obesity PTP1B may interfere with the normal activity of leptin a hormone critical for regulating energy balance. Its interaction with the insulin receptor and JAK2 makes PTP1B a target for therapeutic interventions aimed at improving insulin sensitivity and energy homeostasis.

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

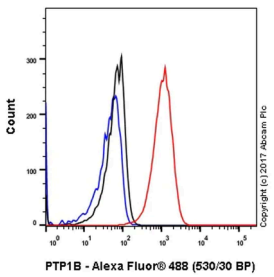
We do not recommend this combination. It is not covered by our product promise.

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.

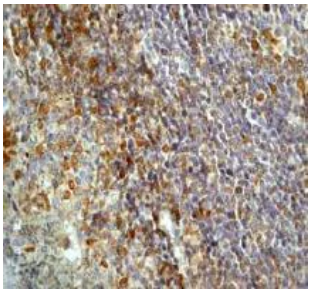
6 product images



Flow Cytometry (Intracellular) - Anti-PTP1B antibody [EP1841Y] (ab75856)

PTP1B Flow Cytometry (Intracellular) staining using rabbit Anti-PTP1B antibody

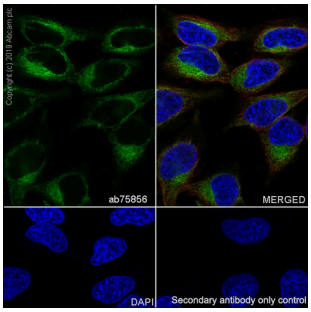
Intracellular Flow Cytometry analysis of Jurkat cells labelling PTP1B with ab75856 at 1/2000 (red). Cells were fixed with 90% methanol. ab150077, Alexa Fluorr® 488-conjugated goat anti-rabbit IgG (1/2000) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG (ab172730). Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTP1B antibody [EP1841Y] (ab75856)

PTP1B Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PTP1B antibody

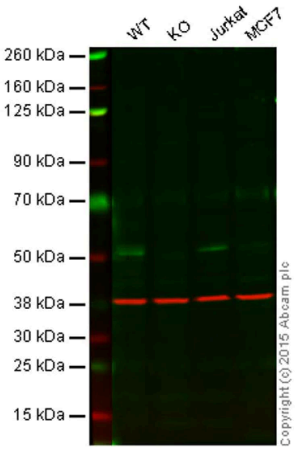
ab75856, at 1/50 dilution, staining PTP1B in human tonsil, by Immunohistochemistry using formalin-fixed, paraffin-embedded tissue.
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-PTP1B antibody [EP1841Y] (ab75856)

PTP1B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PTP1B antibody

Immunocytochemistry/ Immunofluorescence analysis of HeLa (human cervix adenocarcinoma epithelial cell) cells labeling PTP1B with purified ab75856 at 1/500 dilution (5.3 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). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/mL) dilution. DAPI (blue) was used as nuclear counterstain. ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL) was used as the secondary antibody only control.



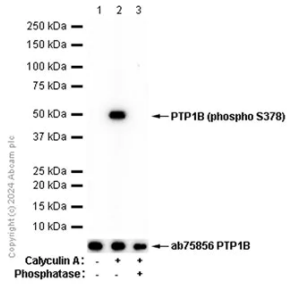
Western blot - Anti-PTP1B antibody [EP1841Y] (ab75856)

PTP1B Western blot staining using rabbit Anti-PTP1B antibody

Lane 1: Wild-type HAP1 cell lysate (20 µg)
Lane 2: PTPB1 knockout HAP1 cell lysate (20 µg)
Lane 3: Jurkat cell lysate (20 µg)
Lane 4: MCF7 cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab75856 observed at 54 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab75856 was shown to specifically react with PTP1B when PTP1B knockout samples were used. Wild-type and ProteinX knockout samples were subjected to SDS-PAGE. ab75856 and ab8245 (loading control to GAPDH) were diluted 1/1000 and 1/2000 respectively and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1/10 000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-PTP1B antibody [EP1841Y] (ab75856)

Predicted band size: 50 kDa



Western blot - Anti-PTP1B antibody [EP1841Y] (ab75856)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
All lanes:
Western blot - Anti-PTP1B (phospho S378) antibody [EP1840Y] (ab76239) at 1/10000 dilution

Lane 1:
Untreated HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate at 15 µg

Lane 2:
HeLa treated with 100ng/ml Calyculin A for 10mins whole cell lysate at 15 µg

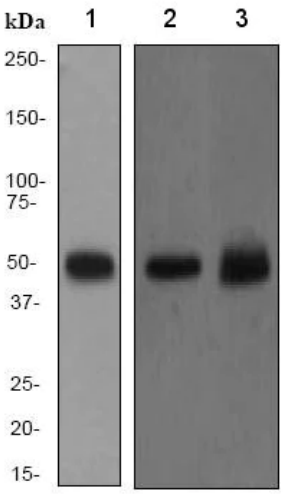
Lane 3:
HeLa treated with 100ng/ml Calyculin A for 10mins whole cell lysate, then the membrane treated with phosphatase at 15 µg

Secondary

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

Predicted band size: 50 kDa

Exposure time: 20s



Western blot - Anti-PTP1B antibody [EP1841Y] (ab75856)

All lanes:
Western blot - Anti-PTP1B antibody [EP1841Y] (ab75856) at 1/2000 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

Secondary

All lanes:
Goat anti-rabbit HRP at 1/1000 dilution

Predicted band size: 50 kDa

Observed band size: 50 kDa

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