abcam

ab238956

Anti-PTP1B antibody [EP1841Y] - 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	EP1841Y
Purification technique	Affinity purification Protein A
Specificity	This antibody detects both phosphorylated and nonphosphorylated PTP1B.
Concentration	1.067 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human

Dilution info	-
Notes	-

IP

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

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	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab238956 is the carrier-free version of ab75856.

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.

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	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.

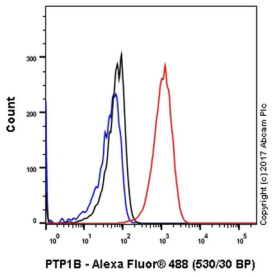
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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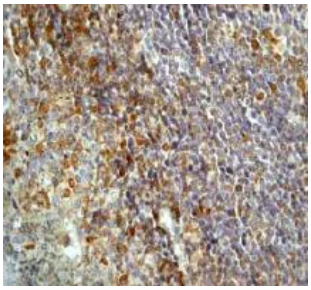
4 product images



Flow Cytometry (Intracellular) - Anti-PTP1B antibody [EP1841Y] - BSA and Azide free (ab238956)

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 Fluor® 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.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab75856).

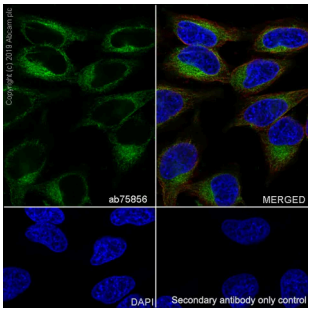


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTP1B antibody [EP1841Y] - BSA and Azide free (ab238956)

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.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab75856).

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

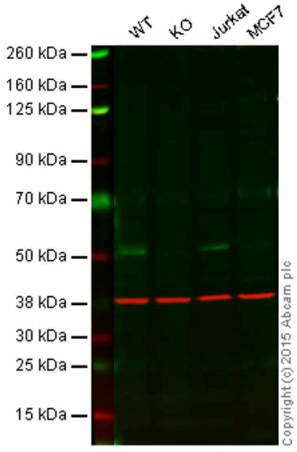


Immunocytochemistry/ Immunofluorescence - Anti-PTP1B antibody [EP1841Y] - BSA and Azide free (ab238956)

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.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab75856).



Western blot - Anti-PTP1B antibody [EP1841Y] - BSA and Azide free (ab238956)

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.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab75856).

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

Predicted band size: 50 kDa

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