abcam

ab248278

Anti-PTP1B + TCPTP antibody [EPR6712] - BSA and Azide free

Recombinant | RabMAb

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	EPR6712
Purification technique	Affinity purification Protein A
Concentration	1.039 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Not recommended

Species	Rat, Human, Mouse
Dilution info	-

Notes	-

IHC-P

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human, Mouse
Dilution info	-
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Rat
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

ab248278 is the carrier-free version of ab129070.

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	PTP1B also known as protein tyrosine phosphatase non-receptor type 1 mechanically functions as an important regulator of signaling pathways by removing phosphate groups from tyrosine residues on target proteins. It has an approximate mass of 50 kDa and is widely expressed in various tissues including

	the liver muscle and both central and peripheral nervous systems. TCPTP another name for this protein has similar enzymatic properties and serves overlapping and distinct functions in cellular regulation.
Biological function summary	Protein tyrosine phosphatase 1B (PTP1B) plays a critical role in controlling cell growth differentiation and metabolism. It influences the insulin signaling pathway affecting glucose homeostasis and energy utilization. PTP1B also engages in immune cell signaling and modulation of inflammatory responses. While typically studied independently this phosphatase can also form part of larger molecular complexes that impact broader signaling environments.
Pathways	Protein tyrosine phosphatase 1B acts as a central node in the insulin and leptin signaling pathways. These pathways significantly influence metabolic processes and energy balance with PTP1B modulating key interactions with insulin receptors and leptin receptors. It closely interacts with proteins such as IRS1 and IRS2 which play substantial roles in transmitting signals downstream of insulin action impacting cellular uptake of glucose and lipid metabolism.
Associated diseases and disorders	Improper regulation of PTP1B links to type 2 diabetes and obesity due to its involvement in insulin resistance and energy imbalance. Altered PTP1B activity affects insulin receptor function contributing to the pathophysiology of these metabolic disorders. Additionally in relation to obesity PTP1B modulates leptin receptor signaling an important aspect in energy expenditure and weight regulation. These connections make it a target for potential therapeutic interventions focused on metabolic diseases.

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

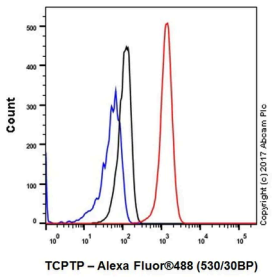
We do not recommend this combination. It is not covered by our product promise.

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.

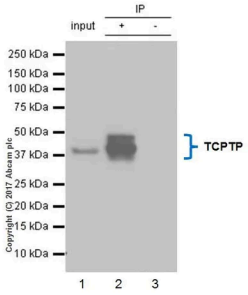
4 product images



Flow Cytometry (Intracellular) - Anti-PTP1B + TCPTP antibody [EPR6712] - BSA and Azide free (ab248278)

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

This data was developed using ab129070, the same antibody clone in a different buffer formulation.
Intracellular flow cytometric analysis of MOLT-4 (human lymphoblastic leukemia T lymphoblast) cell line fixed with 4% paraformaldehyde and permeabilized with 90% methanol labeling TCPTP with ab129070 at 1/200 dilution (red). This is compared with a Rabbit monoclonal IgG – Isotype control (ab172730) (black) and a unalbelled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-rabbit IgG (Alexa Fluor®488) (ab150077) at 1/2000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-PTP1B + TCPTP antibody [EPR6712] - BSA and Azide free (ab248278)

This data was developed using ab129070, the same antibody clone in a different buffer formulation.
Lane 1 (input): MOLT-4 (human lymphoblastic leukemia T lymphoblast) whole cell lysate, 10µg

Lane 2 (+): MOLT-4 whole cell lysate

Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab129070 in MOLT-4 whole cell lysate.

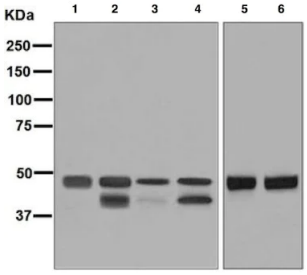
ab129070 immunoprecipitating TCPTP in MOLT-4 whole cell lysate. Capture antibody was used at a 1:20 dilution (0.6µg in 0.35mg lysates). For western blotting, primary antibody used was ab129070 at 1:1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/1000 dilution.

Blocking and dilution buffer: 5% NFDM/TBST.

Exposure time: 1 second.

All lanes:
Immunoprecipitation - Anti-PTP1B + TCPTP antibody [EPR6712] (ab129070)

Exposure time: 1s



Western blot - Anti-PTP1B + TCPTP antibody [EPR6712] - BSA and Azide free (ab248278)

PTP1B + TCPTP Western blot staining using rabbit Anti-PTP1B + TCPTP antibody

This data was developed using ab129070, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-PTP1B + TCPTP antibody [EPR6712] (ab129070) at 1/1000 dilution

Lane 1:
HL60 cell lysate at 10 µg

Lane 2:
NIH/3T3 cell lysate at 10 µg

Lane 3:
Mouse placenta tissue lysate at 10 µg

Lane 4:
Mouse thymus tissue lysate at 10 µg

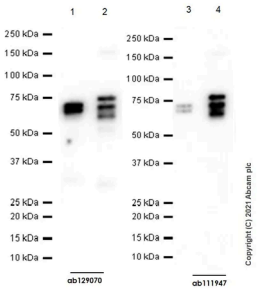
Lane 5:
MOLT4 cell lysate at 10 µg

Lane 6:
HepG2 cell lysate at 10 µg

Secondary

All lanes:
Goat anti-Rabbit HRP at 1/2000 dilution

Observed band size: 45-48 kDa



Western blot - Anti-PTP1B + TCPTP antibody [EPR6712] - BSA and Azide free (ab248278)

PTP1B + TCPTP Western blot staining using rabbit Anti-PTP1B + TCPTP antibody

This data was developed using ab129070, the same antibody clone in a different buffer formulation.
Blocking and diluting buffer and concentration: 5% NFDM/TBST

N-GST tagged full length recombinant human TCPTP protein (Cat#: ab268903)

N-GST tagged Full length Recombinant human PTP1B protein (Cat#: ab268897)

All lanes:
Western blot - Anti-PTP1B + TCPTP antibody [EPR6712] (ab129070) at 1/1000 dilution

Lanes 1 and 3:
N-GST tagged full length recombinant human TCPTP (PTPN2) protein 10ng

Lanes 2 and 4:
N-GST tagged full length recombinant human PTP1B (PTPN1) protein 10ng

Secondary

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

Observed band size: 68-75 kDa

Exposure time: 5s

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