abcam

ab244207

Anti-PTP1B antibody [EPR22474]

Anti-PTP1B antibody [EPR22474] (ab244207) is a rabbit monoclonal antibody detecting PTP1B in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- KO validated for confirmed specificity
- Biophysical QC for unrivalled batch-batch consistency
- Over 10 publications

Recombinant | RabMAb | KO Validated | 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	EPR22474
Purification technique	Affinity purification Protein A
Specificity	IHC is recommended for human only.
Concentration	0.51 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/1000
Notes	IHC is recommended for human only. Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Expected

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

What is this antibody validated in?
Anti-PTP1B antibody [EPR22474] (ab244207) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of PTP1B?
Anti-PTP1B [EPR22474] (ab244207) specifically detects a band for PTP1B (UniProt: P18031) at a molecular weight of 50kDa.

Trusted by the scientific community
Anti-PTP1B [EPR22474] (ab244207) was first used in a scientific publication in 2019 and has been cited over 10 times in peer-reviewed journals.

Specificity confirmed
The specificity of Anti-PTP1B antibody [EPR22474] (ab244207) has been confirmed by Immunocytochemistry testing in PTPN1 Knockout HAP1 cell line, ab265014.

Other related products
We have a range of other formats of antibody clone [EPR22474] also available for your convenience: ab244207, Carrier free - ab245984

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size 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.

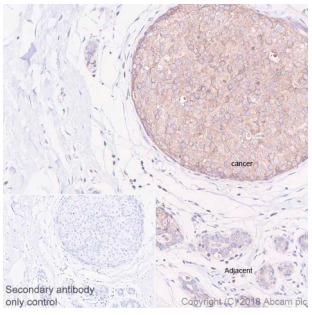
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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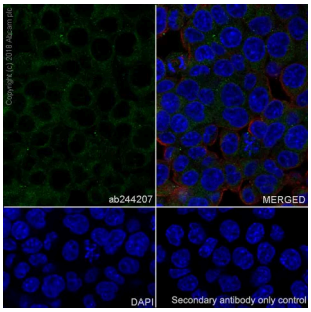
14 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTP1B antibody [EPR22474] (ab244207)

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

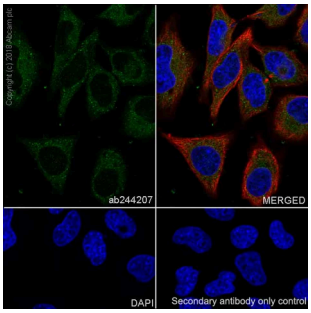
Immunohistochemical analysis of paraffin-embedded human breast cancer tissue labeling PTP1B with ab244207 at 1/1000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Higher cytoplasmic expression in human breast cancer than that of adjacent normal tissues (PMID: 27465552) is observed. Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



Immunocytochemistry/ Immunofluorescence - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PTP1B antibody

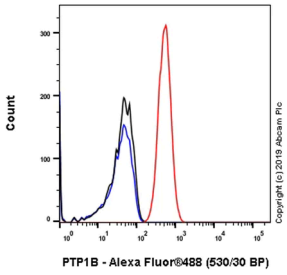
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HCT 116 (human colorectal carcinoma epithelial cell) cells labeling PTP1B with ab244207 at 1/50 dilution, followed by a Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining in HCT 116 cells. The nuclear counterstain is DAPI (blue).
Counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at a 1/200 dilution (red).
The negative control is the secondary antibody only.



Immunocytochemistry/ Immunofluorescence - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PTP1B antibody

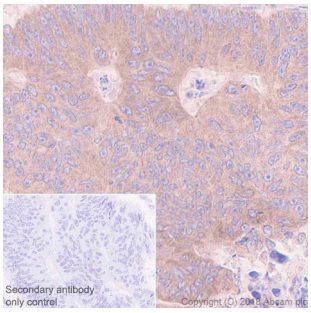
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (human cervix adenocarcinoma epithelial cell) cells labeling PTP1B with ab244207 at 1/50 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining in HeLa cells is observed. The nuclear counterstain is DAPI (blue).
Counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at a 1/200 dilution (red).
The negative control is the secondary antibody only.



Flow Cytometry (Intracellular) - Anti-PTP1B antibody [EPR22474] (ab244207)

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

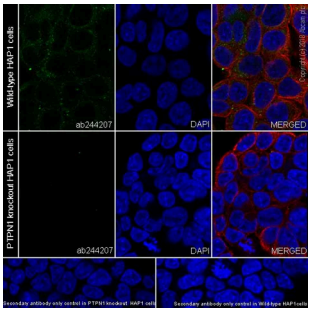
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized HeLa (human cervix adenocarcinoma epithelial cell) cell line labeling PTP1B with ab244207 at 1/500 (red) compared with a Rabbit monoclonal IgG (ab172730)isotype control (black) and an unlabeled control (cells 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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTP1B antibody [EPR22474] (ab244207)

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

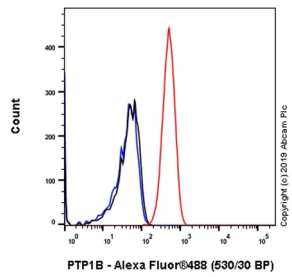
Immunohistochemical analysis of paraffin-embedded human colon cancer tissue labeling PTP1B with ab244207 at 1/1000 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP) secondary antibody. Cytoplasmic staining in human colon cancer (PMID:27752061) is observed. Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



Immunocytochemistry/ Immunofluorescence - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PTP1B antibody

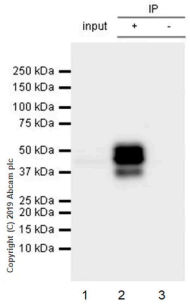
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized Wild type and PTP1B-knockout HAP1 (Human chronic myelogenous leukemia near-haploid cell line) cells labeling PTP1B with ab244207 at 1/50 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing no staining in PTP1B-knockout HAP1 cells. The nuclear counterstain is DAPI (blue).
Counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at a 1/200 dilution (red).
The negative control is the secondary antibody only.



Flow Cytometry (Intracellular) - Anti-PTP1B antibody [EPR22474] (ab244207)

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

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized HCT 116 (human colorectal carcinoma epithelial cell) cell line labeling PTP1B with ab244207 at 1/50 (red) compared with a Rabbit monoclonal IgG (ab172730) isotype control (black) and an unlabeled 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.

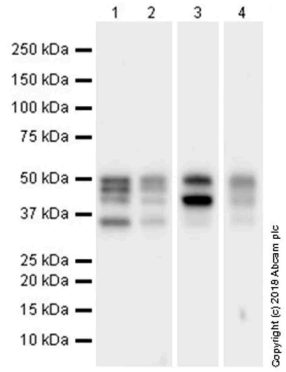


Immunoprecipitation - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B was immunoprecipitated from 0.35 mg HCT 116 (human colorectal carcinoma epithelial cell) whole cell lysate with ab244207 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab244207 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/5000 dilution.
Lane 1: HCT 116 whole cell lysate 10 µg (Input).
Lane 2: ab244207 IP in HCT 116 whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab244207 in HCT 116 whole cell lysate.
Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure time: 30 seconds.

The observed MW is consistent with what described in the literatures. (PMID: 18253097; PMID: 11895943; PMID: 19797268).
All lanes:
Immunoprecipitation - Anti-PTP1B antibody [EPR22474] (ab244207)

Predicted band size: 50 kDa



Western blot - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B Western blot staining using rabbit Anti-PTP1B antibody

The expression profile observed is consistent with what has been described in the literature (PMID: 18253097; PMID: 11895943; PMID: 19797268). The bands below 50 kDa may represent truncated forms and cleaved fragments.
Blocking/Dilution buffer: NFDM/TBST.

Exposure time: 37 seconds.

All lanes:
Western blot - Anti-PTP1B antibody [EPR22474] (ab244207) at 1/1000 dilution

Lane 1:
HepG2 (human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
A549 (human lung carcinoma epithelial cell) whole cell lysate at 20 µg

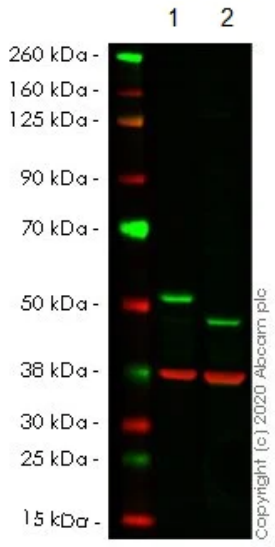
Lane 3:
MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
SW480 (human colorectal adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 50 kDa



Western blot - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B Western blot staining using rabbit Anti-PTP1B antibody

Lanes 1- 2: Merged signal (red and green). Green - ab244207 observed at 50 kDa. Red - Anti-GAPDH antibody [6C5] - Loading Control (ab8245) observed at 37 kDa.
ab244207 was shown to react with PTP1B in wild-type HeLa cells in western blot. The band observed in CRISPR/Cas9 edited cell line ab265014 (CRISPR/Cas9 edited cell lysate ab257617) lane below 50kDa may represent truncated forms and cleaved fragments. This has not been investigated further. Wild-type HeLa and PTPN1 CRISPR/Cas9 edited HeLa cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab244207 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. 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 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:

Western blot - Anti-PTP1B antibody [EPR22474] (ab244207) at 1/1000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

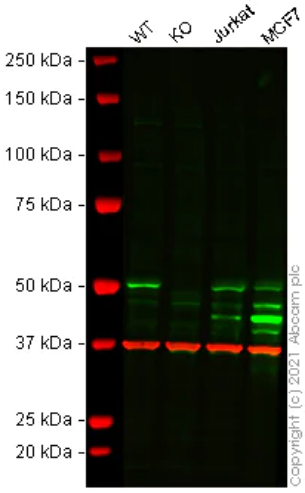
Lane 2:
PTPN1 CRISPR/Cas9 edited HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human PTPN1 (PTP1B) knockout HeLa cell line (ab265014)

Performed under reducing conditions.

Predicted band size: 50 kDa

Observed band size: 50 kDa



Western blot - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B Western blot staining using rabbit Anti-PTP1B antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab244207 observed at 51 kDa. Red - loading control ab8245 (Mouse anti-GAPDH antibody [6C5]) observed at 37 kDa.
ab244207 was shown to react with PTP1B in wild-type HeLa cells in western blot. The band observed in knockout cell line ab265014 (knockout cell lysate ab257617) lane below 50kDa may represent truncated forms and cleaved fragments. This has not been investigated further. Wild-type HeLa and PTPN1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5 % milk in TBS-T (0.1 % Tween®) before incubation with ab244207 and ab8245 (Mouse anti-GAPDH antibody [6C5]) overnight at 4 °C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-PTP1B antibody [EPR22474] (ab244207) at 1/1000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
PTPN1 knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human PTPN1 (PTP1B) knockout HeLa cell line (ab265014)

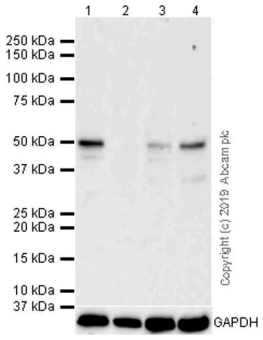
Lane 3:
Jurkat cell lysate at 20 µg

Lane 4:
MCF7 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 50 kDa

Observed band size: 51 kDa



Western blot - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B Western blot staining using rabbit Anti-PTP1B antibody

ab244207 was shown to specifically react with PTP1B in wild-type HAP1 cells as signal was lost in PTP1B knockout cells. Wild-type and PTP1B knockout samples were subjected to SDS-PAGE. ab244207 and ab181602 (Rabbit anti-GAPDH loading control) were incubated 1 hour at room temperature at 1/1000 dilution and 1/200,000 dilution respectively. Blots were developed with Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) secondary antibody at 1/100,000 dilution for 1 hour at room temperature before imaging. The blot was developed on a BIO-RAD® ChemiDoc™ MP instrument using the ECL technique.
The expression profile observed is consistent with what has been described in the literature (PMID: 18253097; PMID: 11895943; PMID: 19797268). The bands below 50 kDa may represent truncated forms and cleaved fragments.

Blocking/Dilution buffer: 5% NFDM/TBST.

Exposure time: 3 minutes.

All lanes:
Western blot - Anti-PTP1B antibody [EPR22474] (ab244207) at 1/1000 dilution

Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

Lane 2:
PTP1B knockout HAP1 whole cell lysate at 20 µg

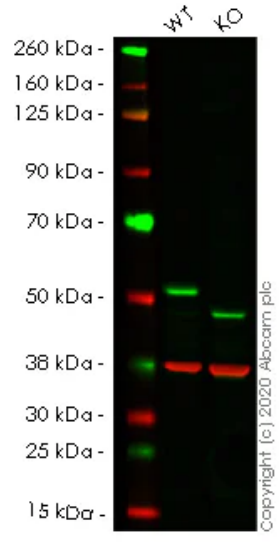
Lane 3:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
HCT 116 (human colorectal carcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 50 kDa



Western blot - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B Western blot staining using rabbit Anti-PTP1B antibody

Lanes 1- 2: Merged signal (red and green). Green - ab244207 observed at 50 kDa. Red - Anti-GAPDH antibody [6C5] - Loading Control (ab8245) observed at 37 kDa.
ab244207 was shown to react with PTP1B in wild-type HeLa cells in western blot. The band observed in knockout cell line ab265014 (knockout cell lysate ab257617) lane below 50kDa may represent truncated forms and cleaved fragments. This has not been investigated further. Wild-type HeLa and PTPN1 knockout HeLa cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab244207 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. 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 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-PTP1B antibody [EPR22474] (ab244207) at 1/1000 dilution

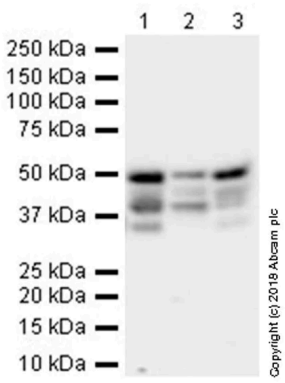
Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
PTPN1 knockout HeLa cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 50 kDa

Observed band size: 50 kDa



Western blot - Anti-PTP1B antibody [EPR22474] (ab244207)

PTP1B Western blot staining using rabbit Anti-PTP1B antibody

The expression profile observed is consistent with what has been described in the literature (PMID: 18253097; PMID: 11895943; PMID: 19797268). The bands below 50 kDa may represent truncated forms and cleaved fragments.
Blocking/Dilution buffer: 5% NFDM/TBST.

Exposure time: 48 seconds.

All lanes:
Western blot - Anti-PTP1B antibody [EPR22474] (ab244207) at 1/1000 dilution

Lane 1:
RAW 264.7 (mouse abelson murine leukemia virus-induced tumor macrophage) whole cell lysate at 10 µg

Lane 2:
PC-12 (rat adrenal gland pheochromocytoma) whole cell lysate at 10 µg

Lane 3:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 10 µg

Secondary

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

Predicted band size: 50 kDa

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