abcam

ab201974

Anti-PTP1B antibody [4F8F11]

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human PTPN1 aa 1-250. The exact immunogen used to generate this antibody is proprietary information. Database link P18031
Clone number	4F8F11
Purification technique	Affinity purification Protein G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from tissue culture supernatant.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1/200 - 1/400

Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat, Chicken
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/500 - 1/2000
Notes	-

Predicted

Species	Mouse, Rat, Chicken
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/200 - 1/1000
Notes	-

Predicted

Species	Mouse, Rat, Chicken
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/200 - 1/1000
Notes	-

Predicted

Species	Mouse, Rat, Chicken
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 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

This product was changed from ascites to supernatant. Lot no's high than GR256355-19 are from Tissue Culture Supernatant

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.

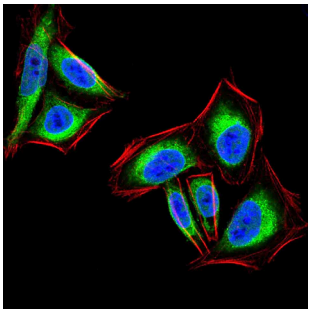
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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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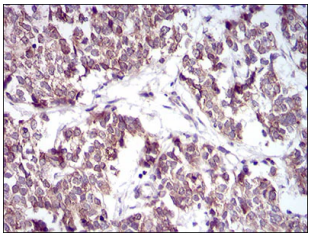
8 product images



Immunocytochemistry/ Immunofluorescence - Anti-PTP1B antibody [4F8F11] (ab201974)

PTP1B Immunocytochemistry/ Immunofluorescence staining using mouse Anti-PTP1B antibody

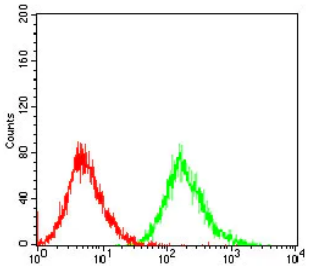
Immunofluorescent analysis of HeLa cells labeling PTP1B with ab201974 at 1/200 dilution (green). Blue: DRAQ5 fluorescent DNA dye. Red: Actin filaments have been labeled with Alexa Fluor- 555 phalloidin.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PTP1B antibody [4F8F11] (ab201974)

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

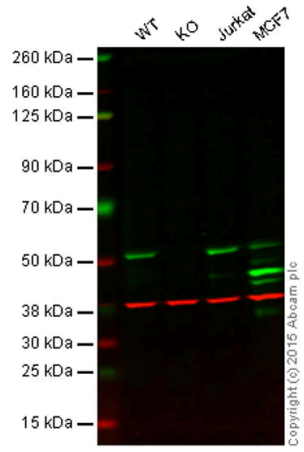
Immunohistochemical analysis of paraffin-embedded Human bladder cancer tissue labeling PTP1B with ab201974 at 1/200 dilution folowed by DAB staining.



Flow Cytometry - Anti-PTP1B antibody [4F8F11] (ab201974)

PTP1B Flow Cytometry staining using mouse Anti-PTP1B antibody

Flow cytometric analysis of Jurkat cells labeling PTP1B with ab201974 at 1/200 dilution (green) compared to a negative control (red).



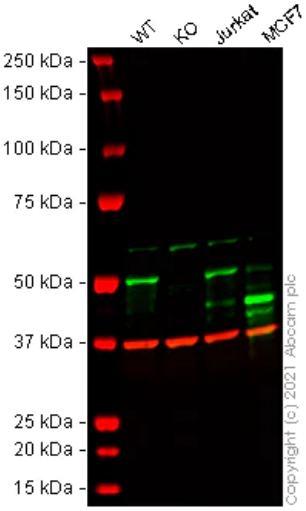
Western blot - Anti-PTP1B antibody [4F8F11] (ab201974)

PTP1B Western blot staining using mouse Anti-PTP1B antibody

Lane 1: Wild-type HAP1 cell lysate (20 µg)
Lane 2: PTP1B 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 - ab201974 observed at 54 kDa. Red - loading control, ab181602, observed at 37 kDa.
ab201974 was shown to specifically react with PTP1B when PTP1B knockout samples were used. Wild-type and PTP1B knockout samples were subjected to SDS-PAGE. ab201974 and ab181602 (loading control to GAPDH) were diluted 1/500 and 1/2000 respectively and incubated overnight at 4°C. Blots were developed with Goat anti-Mouse IgG H&L (IRDye® 800CW) preadsorbed (ab216772) and Goat Anti-Rabbit IgG H&L (IRDye® 680RD) preadsorbed (ab216777) secondary antibodies at 1/10 000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-PTP1B antibody [4F8F11] (ab201974)

Predicted band size: 50 kDa



Western blot - Anti-PTP1B antibody [4F8F11] (ab201974)

PTP1B Western blot staining using mouse Anti-PTP1B antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab201974 observed at 51 kDa. Red - loading control ab181602 (Rabbit Anti-GAPDH antibody [EPR16891]) observed at 37 kDa.
ab201974 was shown to react with PTP1B in wild-type HeLa cells in Western blot with loss of signal observed in PTPN1 knockout cell line ab265014 (PTPN1 knockout cell lysate ab257617). 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 ab201974 and ab181602 (Rabbit Anti-GAPDH antibody [EPR16891]) overnight at 4 °C at a 1 in 500 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Mouse IgG H&L (IRDye® 800CW) preabsorbed (ab216772) and Goat anti-Rabbit IgG H&L (IRDye® 680RD) preabsorbed (ab216777) secondary antibodies at 1 in 20000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-PTP1B antibody [4F8F11] (ab201974) at 1/500 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)

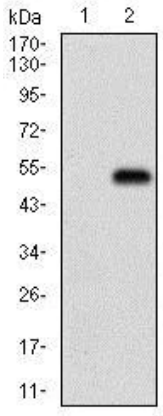
Lane 3:
Jurkat cell lysate at 20 µg

Lane 4:
MCF7 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 50 kDa

Observed band size: 51 kDa



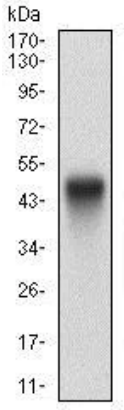
Western blot - Anti-PTP1B antibody [4F8F11] (ab201974)

All lanes:
Western blot - Anti-PTP1B antibody [4F8F11] (ab201974) at 1/500 dilution

Lane 1:
HEK293 cell lysate

Lane 2:
PTP1B (aa40-246)-hIgGFc transfected HEK293 cell lysate

Predicted band size: 50 kDa

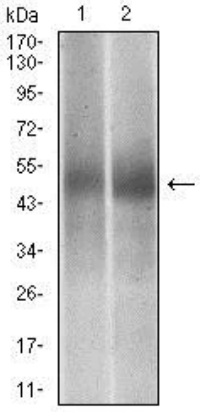


Western blot - Anti-PTP1B antibody [4F8F11] (ab201974)

Expected MWt is 50 kDa.
All lanes:
Western blot - Anti-PTP1B antibody [4F8F11] (ab201974) at 1/500 dilution

All lanes:
Human PTP1B (aa40-246) recombinant protein

Predicted band size: 50 kDa



Western blot - Anti-PTP1B antibody [4F8F11] (ab201974)

All lanes:
Western blot - Anti-PTP1B antibody [4F8F11] (ab201974) at 1/500 dilution

Lane 1:
Jurkat cell lysate

Lane 2:
MCF7 cell lysate

Predicted band size: 50 kDa

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