

# PTP1B (D-4): sc-133259

## BACKGROUND

The phosphorylation of proteins at tyrosine residues has long been recognized as an important regulatory component of signal transduction. This is a reversible process, involving both enzymes that phosphorylate proteins on tyrosine residues as well as a rapidly expanding family of protein tyrosine phosphatases. These latter enzymes bear little resemblance to either the protein serine and protein threonine phosphatases or to the acid and alkaline phosphatases. In most tissues, the major PTPase is a vanadate- and molybdate-sensitive protein. On the basis of sequence analysis, PTP1B (PTPase 1B) expressed in human placenta exhibits similarities both with the common leukocyte antigen (CD45) and with LAR, a homolog of the neural adhesion molecule (NCAM). PTP1B is synthesized as a 435 amino acid precursor protein which is cleaved to generate the active 321 amino acid enzyme.

## CHROMOSOMAL LOCATION

Genetic locus: PTPN1 (human) mapping to 20q13.13.

## SOURCE

PTP1B (D-4) is a mouse monoclonal antibody raised against amino acids 301-435 mapping at the C-terminus of PTP1B (protein tyrosine phosphatase) of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PTP1B (D-4) is available conjugated to agarose (sc-133259 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-133259 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-133259 PE), fluorescein (sc-133259 FITC), Alexa Fluor® 488 (sc-133259 AF488), Alexa Fluor® 546 (sc-133259 AF546), Alexa Fluor® 594 (sc-133259 AF594) or Alexa Fluor® 647 (sc-133259 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-133259 AF680) or Alexa Fluor® 790 (sc-133259 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

PTP1B (D-4) is recommended for detection of PTP1B of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PTP1B siRNA (h): sc-36328, PTP1B shRNA Plasmid (h): sc-36328-SH and PTP1B shRNA (h) Lentiviral Particles: sc-36328-V.

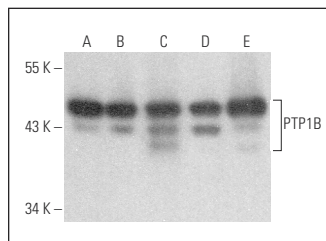
Molecular Weight of PTP1B: 50 kDa.

Positive Controls: CCRF-HSB-2 cell lysate: sc-2265, HL-60 whole cell lysate: sc-2209 or Hep G2 cell lysate: sc-2227.

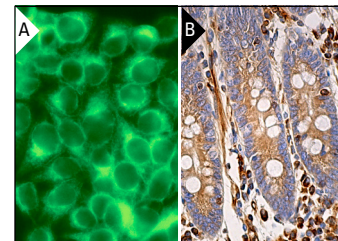
## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## DATA



PTP1B (D-4): sc-133259. Western blot analysis of PTP1B expression in HL-60 (A), CCRF-HSB-2 (B), Hep G2 (C), Jurkat (D) and MCF7 (E) whole cell lysates.



PTP1B (D-4): sc-133259. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular and interstitial cells (B).

## SELECT PRODUCT CITATIONS

- Bhakta, H.K., et al. 2017. Oligonol promotes glucose uptake by modulating the Insulin signaling pathway in Insulin-resistant Hep G2 cells via inhibiting protein tyrosine phosphatase 1B. Arch. Pharm. Res. 40: 1314-1327.
- Yu, C.H., et al. 2018. Target identification reveals protein arginine methyltransferase 1 is a potential target of phenyl vinyl sulfone and its derivatives. Biosci. Rep. 38: BSR20171717.
- Obata, Y., et al. 2019. N822K- or V560G-mutated KIT activation preferentially occurs in lipid rafts of the Golgi apparatus in leukemia cells. Cell Commun. Signal. 17: 114.
- Yue, L., et al. 2019. PTP1B negatively regulates nitric oxide-mediated *Pseudomonas aeruginosa* killing by neutrophils. PLoS ONE 14: e0222753.
- Xu, Q., et al. 2019. Inhibition of PTP1B blocks pancreatic cancer progression by targeting the PKM2/AMPK/mTORC1 pathway. Cell Death Dis. 10: 874.
- Lee, Y.J., et al. 2020. Ethacrynic acid inhibits STAT3 activity through the modulation of SHP2 and PTP1B tyrosine phosphatases in DU145 prostate carcinoma cells. Biochem. Pharmacol. 175: 113920.
- Müller, M.B., et al. 2022. Cell-crossing functional network driven by microRNA-125a regulates endothelial permeability and monocyte trafficking in acute inflammation. Front. Immunol. 13: 826047.
- Lin, Y.C., et al. 2023. H<sub>2</sub>S- and redox-state-mediated PTP1B S-sulphydration in Insulin signaling. Int. J. Mol. Sci. 24: 2898.
- Silva, F., et al. 2023. TrkC intracellular signalling in the brain fear network during the formation of a contextual fear memory. Mol. Neurobiol. E-published.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.