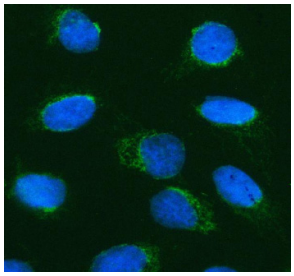
# PTPRE Antibody / Protein tyrosine phosphatase epsilon (FY13352)

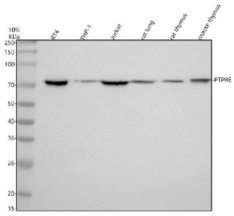
| Catalog No. | Formulation | Size |
|---|---|---|
| FY13352 | Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml | 100 ug |

## Bulk quote request

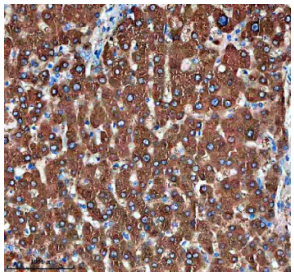
| | |
|---|---|
| **Availability** | 1-2 days |
| **Species Reactivity** | Human, Mouse, Rat |
| **Format** | Lyophilized |
| **Host** | Rabbit |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit IgG |
| **Purity** | Immunogen affinity purified |
| **Buffer** | Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4. |
| **UniProt** | P23469 |
| **Localization** | Cytoplasm (Intermediate filaments) |
| **Applications** | Western Blot: 0.25-0.5ug/ml<br>Immunohistochemistry: 2-5ug/ml<br>Immunocytochemistry/Immunofluorescence: 5ug/ml<br>Flow cytometry: 1-3ug/million cells<br>ELISA: 0.1-0.5ug/ml |
| **Limitations** | This PTPRE antibody is available for research use only. |



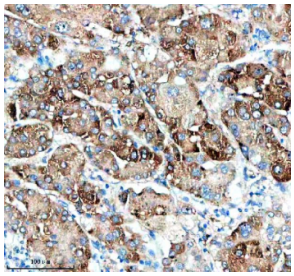
Immunofluorescent staining of PTPRE using anti-PTPRE antibody (green). PTPRE was detected in an immunocytochemical section of U2OS cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-PTPRE antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



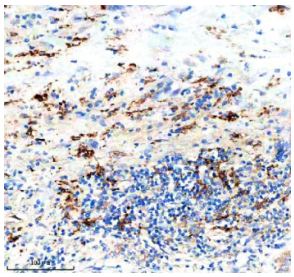
Western blot analysis of PTPRE using anti-PTPRE antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human RT4 whole cell lysates, Lane 2: human THP-1 whole cell lysates, Lane 3: human Jurkat whole cell lysates, Lane 4: rat lung tissue lysates, Lane 5: rat thymus tissue lysates, Lane 6: mouse thymus tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-PTPRE antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A predominant band is detected in all samples at approximately 70-75 kDa, running below the predicted ~81 kDa size but consistent with the reported apparent molecular weight of endogenous PTPRE isoforms.



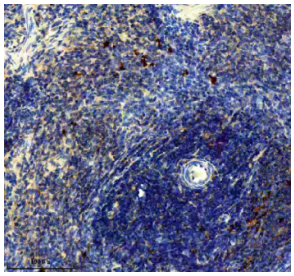
Immunohistochemical staining of PTPRE using anti-PTPRE antibody. PTPRE was detected in a paraffin-embedded section of human liver tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PTPRE antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



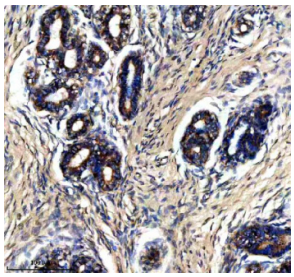
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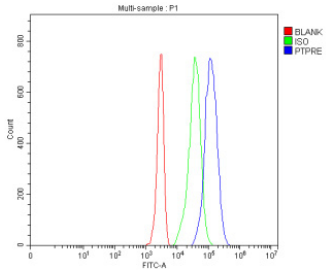
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Immunohistochemical staining of PTPRE using anti-PTPRE antibody. PTPRE was detected in a paraffin-embedded section of rat spleen tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PTPRE antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunohistochemical staining of PTPRE using anti-PTPRE antibody. PTPRE was detected in a paraffin-embedded section of human breast cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-PTPRE antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.




Flow Cytometry analysis of human Jurkat cells using anti-PTPRE antibody. Overlay histogram showing Jurkat cells stained with (Blue line). The cells were fixed with 4% paraformaldehyde and blocked with 10% normal goat serum. And then incubated with rabbit anti-PTPRE antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

## Description

PTPRE antibody detects Protein tyrosine phosphatase epsilon, a cytoplasmic and membrane-associated enzyme encoded by the PTPRE gene on chromosome 10q26.2. PTPRE belongs to the protein tyrosine phosphatase (PTP) family and functions as a key regulator of cell signaling by dephosphorylating tyrosine residues on target proteins. The enzyme exists in two major isoforms: a receptor-type (RPTP-epsilon) anchored to the plasma membrane and a cytoplasmic form (cyt-PTP-epsilon) expressed in hematopoietic and neural tissues. PTPRE is highly expressed in brain, bone, and immune cells, where it regulates cell adhesion, differentiation, and electrical signaling.

Functionally, PTPRE negatively regulates receptor tyrosine kinase signaling pathways, including EGFR, PDGFR, and insulin receptor signaling. By dephosphorylating these kinases and associated adaptor proteins, it modulates cellular responses to growth factors and cytokines. PTPRE also participates in the regulation of voltage-gated potassium channels, influencing neuronal excitability and osteoclast function. Co-localization studies show PTPRE interacting with Kv2.1 channels and integrin complexes at the plasma membrane.

Structurally, PTPRE contains a catalytic phosphatase domain with the conserved HCXGR motif responsible for substrate dephosphorylation and a regulatory domain that mediates dimerization and subcellular targeting. The receptor isoform features an extracellular region, a single transmembrane helix, and two intracellular catalytic domains, whereas the cytoplasmic variant lacks the transmembrane segment. PTPRE is classified within the receptor-type PTP family, which includes PTPRA and PTPRJ, sharing high sequence and structural similarity.

PTPRE is essential in regulating bone resorption, neuronal signaling, and immune cell activation. In osteoclasts, it modulates integrin-mediated cytoskeletal organization and bone matrix degradation. In neurons, PTPRE fine-tunes ion channel phosphorylation, controlling electrical activity. It is also involved in macrophage and mast cell activation through modulation of Src family kinases. Known substrates include the EGF receptor, p130Cas, and voltage-gated potassium channels, linking PTPRE to multiple signaling pathways including MAPK and PI3K-AKT.

Dysregulation of PTPRE expression contributes to pathological conditions such as osteoporosis, cancer, and autoimmune disorders. Overexpression has been observed in breast cancer, where it enhances oncogenic signaling and invasion, while loss of function leads to impaired osteoclast activity and bone remodeling defects. Pathway associations include dephosphorylation signaling, Rho GTPase regulation, and integrin signaling networks. Developmentally, PTPRE is expressed in neural crest and mesenchymal cells, supporting differentiation and migration during embryogenesis.

Immunohistochemical staining using PTPRE antibody shows membrane and cytoplasmic localization in neurons, osteoclasts, and epithelial cells. The PTPRE antibody from NSJ Bioreagents is a valuable reagent for research in

phosphatase signaling, neural electrophysiology, and bone metabolism.

## Application Notes

Optimal dilution of the PTPRE antibody should be determined by the researcher.

## Immunogen

E.coli-derived human PTPRE recombinant protein (Position: Q74-H591) was used as the immunogen for the PTPRE antibody.

## Storage

After reconstitution, the PTPRE antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.


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