

# PTP $\zeta$ (122.2): sc-33664

## BACKGROUND

Protein tyrosine phosphatases, or PTPs, are type I transmembrane proteins, membrane associated proteins or proteins localized in nuclei. Examples of transmembrane PTPs are LAR, PTP $\alpha$ , PTP $\beta$ , PTP $\gamma$ , PTP $\delta$ , PTP $\epsilon$ , PTP $\mu$ , PTP $\kappa$  and PTP $\zeta$ . Transmembrane PTPs play diverse roles during development and in adult tissues. Immunodepletion studies have suggested LAR to be a regulator of Insulin receptor phosphorylation. PTP $\alpha$  activity is increased twofold in response to phorbol ester stimulation, resulting in serine phosphorylation either directly or indirectly by members of the PKC family. Overexpression of v-H-Ras and Neu, but not Myc or Int2, in mammary tumors has been shown to induce PTP $\epsilon$  expression. An alternative splicing event leads to a nervous tissue-specific chondroitin sulfate proteoglycan called phosphacan, which represents the amino terminal portion of PTP $\mu$ . PTP $\kappa$  and PTP $\zeta$  share a conserved amino terminal 160 amino acid MAM domain which facilitates homophilic binding. PTP $\zeta$  localizes to points of cell contact and may be involved in regulating the assembly and disassembly of cadherin/catenin complexes *in vivo*.

## CHROMOSOMAL LOCATION

Genetic locus: PTPRZ1 (human) mapping to 7q31.32; Ptpz1 (mouse) mapping to 6 A3.1.

## SOURCE

PTP $\zeta$  (122.2) is a mouse monoclonal antibody immunized with purified proteoglycan fraction of infant brains of rat origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## APPLICATIONS

PTP $\zeta$  (122.2) is recommended for detection of PTP $\zeta$  of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for PTP $\zeta$  siRNA (h): sc-44048, PTP $\zeta$  siRNA (m): sc-44970, PTP $\zeta$  shRNA Plasmid (h): sc-44048-SH, PTP $\zeta$  shRNA Plasmid (m): sc-44970-SH, PTP $\zeta$  shRNA (h) Lentiviral Particles: sc-44048-V and PTP $\zeta$  shRNA (m) Lentiviral Particles: sc-44970-V.

Molecular Weight of PTP $\zeta$  short form: 190 kDa.

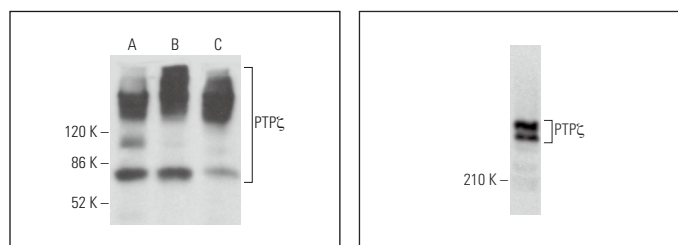
Molecular Weight of glycosylated PTP $\zeta$  form: 350-400/90 kDa.

Positive Controls: mouse brain extract: sc-2253, SK-N-SH cell lysate: sc-2410 or MOLT-4 cell lysate: sc-2233.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG $\kappa$  BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohisto-mount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



PTP $\zeta$  (122.2): sc-33664. Western blot analysis of PTP $\zeta$  expression in mouse brain (A), mouse postnatal brain (B) and rat hippocampus (C) tissue extracts.

## SELECT PRODUCT CITATIONS

- Kaspis, A., et al. 2016. Effects of mechanical loading on the expression of pleiotrophin and its receptor protein tyrosine phosphatase  $\beta/\zeta$  in a rat spinal deformity model. *Cytokine* 78: 7-15.
- Cijsouw, T., et al. 2018. Mapping the proteome of the synaptic cleft through proximity labeling reveals new cleft proteins. *Proteomes* 6: 48.
- Bhaduri, A., et al. 2020. Outer radial glia-like cancer stem cells contribute to heterogeneity of glioblastoma. *Cell Stem Cell* 26: 48-63.e6.
- Yamanoi, Y., et al. 2020. Soluble protein tyrosine phosphatase receptor type Z (PTPRZ) in cerebrospinal fluid is a potential diagnostic marker for glioma. *Neurooncol. Adv.* 2: vdaa055.
- Delgado, R.N., et al. 2022. Individual human cortical progenitors can produce excitatory and inhibitory neurons. *Nature* 601: 397-403.
- Nagai, K., et al. 2023. Brain-specific glycosylation enzyme GnT-IX maintains levels of protein tyrosine phosphatase receptor PTPRZ, thereby mediating glioma growth. *J. Biol. Chem.* 299: 105128.
- Choudhury, A., et al. 2023. NOTCH3 drives meningioma tumorigenesis and resistance to radiotherapy. *bioRxiv*. E-published.

## RESEARCH USE

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