

PTP σ (K-19): sc-10873

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 α , PTP β , PTP γ , PTP δ , PTP ϵ , PTP ζ , PTP κ , PTP μ and PTP σ . 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 α 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 ϵ expression. An alternative splicing event leads to a nervous tissue-specific chondroitin sulfate proteoglycan called phosphacan, which represents the amino-terminal portion of PTP ζ . PTP κ and PTP μ share a conserved amino terminal 160 amino acid MAM domain which facilitates homophilic binding. PTP μ localizes to points of cell contact and may be involved in regulating the assembly and disassembly of cadherin/catenin complexes *in vivo*. PTP σ contains an extracellular region, a single transmembrane segment and two tandem intracytoplasmic catalytic domains, and thus represents a receptor-type PTP. PTP σ may also be involved in the molecular control of adult nerve repair. Four alternatively spliced transcript variants, which encode distinct proteins, have been reported.

REFERENCES

1. Krueger, N.X., et al. 1990. Structural diversity and evolution of human receptor-like protein tyrosine phosphatases. *EMBO J.* 9: 3241-3252.
2. Fischer, E.H., et al. 1991. Protein tyrosine phosphatases: a diverse family of intracellular and transmembrane enzymes. *Science* 253: 401-406.
3. Pan, M.G., et al. 1993. Cloning and expression of two structurally distinct receptor-linked protein-tyrosine phosphatases generated by RNA processing from a single gene. *J. Biol. Chem.* 268:19284-19291.
4. Serra-Pages, C., et al. 1995. The LAR transmembrane protein tyrosine phosphatase and a coiled-coil LAR-interacting protein co-localize at focal adhesions. *EMBO J.* 14: 2827-2838.
5. Pulido, R., et al. 1995. The LAR/PTP δ /PTP σ subfamily of transmembrane protein-tyrosine-phosphatases. *Proc. Natl. Acad. Sci. USA* 92: 11686-11690.

CHROMOSOMAL LOCATION

Genetic locus: PTPRS (human) mapping to 19p13.3; Ptprs (mouse) mapping to 17 D.

SOURCE

PTP σ (K-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PTP σ of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-10873 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PTP σ (K-19) is recommended for detection of PTP σ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

PTP σ (K-19) is also recommended for detection of PTP σ in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for PTP σ siRNA (h): sc-44056, PTP σ siRNA (m): sc-77403, PTP σ shRNA Plasmid (h): sc-44056-SH, PTP σ shRNA Plasmid (m): sc-77403-SH, PTP σ shRNA (h) Lentiviral Particles: sc-44056-V and PTP σ shRNA (m) Lentiviral Particles: sc-77403-V.

Molecular Weight of PTP σ : 217 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker[™] Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz[™] Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. González-Fernández, L., et al. 2009. Identification of protein tyrosine phosphatases and dual-specificity phosphatases in mammalian spermatozoa and their role in sperm motility and protein tyrosine phosphorylation. *Biol. Reprod.* 80: 1239-1252.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **PTP σ (SS-8): sc-100419**, our highly recommended monoclonal alternative to PTP σ (K-19).