

PTP σ (SS-8): sc-100419

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 PTP σ 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 two-fold 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

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- 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.
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- Wallace, M.J., et al. 1998. The second catalytic domain of protein tyrosine phosphatase δ (PTP δ) binds to and inhibits the first catalytic domain of PTP σ . *Mol. Cell. Biol.* 18: 2608-2616.

CHROMOSOMAL LOCATION

Genetic locus: PTPRS (human) mapping to 19p13.3.

SOURCE

PTP σ (SS-8) is a mouse monoclonal antibody raised against a recombinant protein mapping within amino acids 1-129 of PTP σ of human origin.

PRODUCT

Each vial contains 100 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PTP σ (SS-8) is recommended for detection of PTP σ of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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

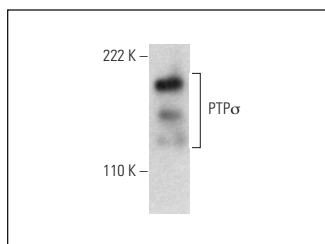
Molecular Weight of PTP σ : 217 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or SH-SY5Y cell lysate: sc-3812.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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 A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



PTP σ (SS-8): sc-100419. Western blot analysis of PTP σ expression in SH-SY5Y whole cell lysate.

SELECT PRODUCT CITATIONS

- Lesnikova, A., et al. 2020. Chondroitinase and antidepressants promote plasticity by releasing TRKB from dephosphorylating control of PTP σ in parvalbumin neurons. *J. Neurosci.* 41: 972-980.

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.