

# PTP $\mu$ (SK15): sc-56959

## 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 $\zeta$ , PTP $\kappa$  and PTP $\mu$ . 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 $\zeta$ . PTP $\kappa$  and PTP $\mu$  share a conserved amino-terminal 160 amino acid MAM domain which facilitates homophilic binding. PTP $\mu$  localizes to points of cell contact and may be involved in regulating the assembly and disassembly of cadherin/catenin complexes *in vivo*.

## REFERENCES

- Ahmad, F., et al. 1995. Increased abundance of the receptor-type protein-tyrosine phosphatase LAR accounts for the elevated Insulin receptor dephosphorylating activity in adipose tissue of obese human subjects. *J. Clin. Invest.* 95: 2806-2812.
- den Hertog, J., et al. 1995. Stimulation of receptor protein-tyrosine phosphatase  $\alpha$  activity and phosphorylation by phorbol ester. *Cell Growth Differ.* 6: 303-307.
- Brady-Kalnay, S.M., et al. 1995. Receptor protein tyrosine phosphatase PTP $\mu$  associates with cadherins and catenins *in vivo*. *J. Cell Biol.* 130: 977-986.
- Zondag, G.C., et al. 1995. Homophilic interactions mediated by receptor tyrosine phosphatases  $\mu$  and  $\kappa$ . A critical role for the novel extracellular MAM domain. *J. Biol. Chem.* 270: 14247-14250.
- Milev, P., et al. 1995. Complex-type asparagine-linked oligosaccharides on phosphacan and protein-tyrosine phosphatase  $\zeta/\beta$  mediate their binding to neural cell adhesion molecules and tenascin. *J. Biol. Chem.* 270: 24650-24653.
- Elson, A., et al. 1995. Protein-tyrosine phosphatase  $\epsilon$ . An isoform specifically expressed in mouse mammary tumors initiated by v-Ha-Ras or Neu. *J. Biol. Chem.* 270: 26116-26122.

## CHROMOSOMAL LOCATION

Genetic locus: PTPRM (human) mapping to 18p11.23; Ptpm (mouse) mapping to 17 E1.1.

## SOURCE

PTP $\mu$  (SK15) is a mouse monoclonal antibody raised against PTP $\mu$  of human origin.

## RESEARCH USE

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

## PRODUCT

Each vial contains 200  $\mu$ g IgG $_1$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

PTP $\mu$  (SK15) is recommended for detection of PTP $\mu$  of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for PTP $\mu$  siRNA (h): sc-44055, PTP $\mu$  siRNA (m): sc-45947, PTP $\mu$  shRNA Plasmid (h): sc-44055-SH, PTP $\mu$  shRNA Plasmid (m): sc-45947-SH, PTP $\mu$  shRNA (h) Lentiviral Particles: sc-44055-V and PTP $\mu$  shRNA (m) Lentiviral Particles: sc-45947-V.

Molecular Weight of PTP $\mu$  precursor: 200 kDa.

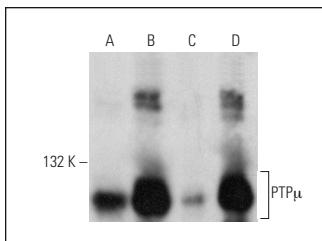
Molecular Weight of PTP $\mu$  subunits: 100 kDa.

Positive Controls: Caki-1 cell lysate: sc-2224, A549 cell lysate: sc-2413 or T98G cell lysate: sc-2294.

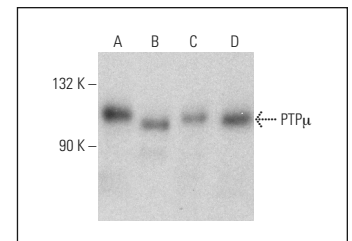
## RECOMMENDED SUPPORT REAGENTS

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<sup>TM</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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 $\mu$  (SK15): sc-56959. Western blot analysis of PTP $\mu$  expression in T98G (A), Caki-1 (B), MG-63 (C) and A549 (D) whole cell lysates.



PTP $\mu$  (SK15): sc-56959. Western blot analysis of PTP $\mu$  expression in T98G (A), Sol8 (B), P 23 (C) and RAT2 (D) whole cell lysates.

## SELECT PRODUCT CITATIONS

- Fearnley, G.W., et al. 2019. The homophilic receptor PTPRK selectively dephosphorylates multiple junctional regulators to promote cell-cell adhesion. *Elife* 8 pii: e44597.
- Hay, I.M., et al. 2020. The receptor PTPRU is a redox sensitive pseudophosphatase. *Nat. Commun.* 11: 3219.

## STORAGE

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