

p-Syndecan-4 (Ser 179): sc-16852

BACKGROUND

Syndecans are transmembrane proteoglycans having highly conserved domains that bind proteins containing PDZ domains and co-localize with the Actin cytoskeleton. The syndecan cytoplasmic domains have four conserved tyrosine residues, two of which are located within favorable sequences for phosphorylation. Tyrosine phosphorylation of the syndecan cytoplasmic domains plays an important role in regulating downstream signaling events in response to cell adhesion and/or growth factor activity. The cytoplasmic tail of Syndecan-4 also undergoes *in vivo* phosphorylation on the serine residue in the membrane-proximal part of the tail. The cytoplasmic tail of Syndecan-4 undergoes multimerization and activates PKC α , depending on the presence of the phospholipid phosphatidylinositol 4,5-bisphosphate (PIP2). Serine phosphorylation of Syndecan-4 dramatically reduces the ability of Syndecan-4 to activate PKC α without affecting its ability to bind to PKC. Syndecan-4 has a lower affinity for PIP2. Phosphorylated Syndecan-4 also abolishes PIP2-dependent oligomerization of Syndecan-4 cytoplasmic tails. In conclusion, serine phosphorylation regulates Syndecan-4 dependent activation of PKC α by reducing the affinity to PIP2 and inhibiting the oligomerization of Syndecan-4 cytoplasmic tails.

REFERENCES

- Oh, E.S., et al. 1997. Syndecan-4 proteoglycan regulates the distribution and activity of protein kinase C. *J. Biol. Chem.* 272: 8133-8136.
- Oh, E.S., et al. 1997. Multimerization of the cytoplasmic domain of Syndecan-4 is required for its ability to activate protein kinase C. *J. Biol. Chem.* 272: 11805-11811.
- Horowitz, A., et al. 1998. Regulation of Syndecan-4 phosphorylation *in vivo*. *J. Biol. Chem.* 273: 10914-10918.
- Horowitz, A., et al. 1998. Phosphorylation of the cytoplasmic tail of Syndecan-4 regulates activation of protein kinase C α . *J. Biol. Chem.* 273: 25548-25551.
- Ott, V.L., et al. 1998. Tyrosine phosphorylation of Syndecan-1 and -4 cytoplasmic domains in adherent B82 fibroblasts. *J. Biol. Chem.* 273: 35291-35298.

CHROMOSOMAL LOCATION

Genetic locus: SDC4 (human) mapping to 20q13.12; Sdc4 (mouse) mapping to 2 H3.

SOURCE

p-Syndecan-4 (Ser 179) is a goat polyclonal antibody raised against a short amino acid sequence containing Ser 179 phosphorylated Syndecan-4 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-16852 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-Syndecan-4 (Ser 179) is recommended for detection of Ser 179 phosphorylated Syndecan-4 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).

p-Syndecan-4 (Ser 179) is also recommended for detection of correspondingly phosphorylated Syndecan-4 in additional species, including equine, bovine, porcine and avian.

Suitable for use as control antibody for Syndecan-4 siRNA (h): sc-36588, Syndecan-4 siRNA (m): sc-36589, Syndecan-4 siRNA (r): sc-270178, Syndecan-4 shRNA Plasmid (h): sc-36588-SH, Syndecan-4 shRNA Plasmid (m): sc-36589-SH, Syndecan-4 shRNA Plasmid (r): sc-270178-SH, Syndecan-4 shRNA (h) Lentiviral Particles: sc-36588-V, Syndecan-4 shRNA (m) Lentiviral Particles: sc-36589-V and Syndecan-4 shRNA (r) Lentiviral Particles: sc-270178-V.

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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminal Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 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

- Chung, J.S., et al. 2009. The DC-HIL/syndecan-4 pathway inhibits human allogeneic T-cell responses. *Eur. J. Immunol.* 39: 965-974.
- Keller-Pinter, A., et al. 2010. Syndecan-4 promotes cytokinesis in a phosphorylation-dependent manner. *Cell. Mol. Life Sci.* 67: 1881-1894.
- Bühligen, J., et al. 2010. Lysophosphatidylcholine-mediated functional inactivation of syndecan-4 results in decreased adhesion and motility of dendritic cells. *J. Cell. Physiol.* 225: 905-914.

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.