SANTA CRUZ BIOTECHNOLOGY, INC.

p-Shc (Tyr 317): sc-18075

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The Shc gene encodes three widely expressed proteins which act as substrates for receptors and tyrosine kinases in signal transduction pathways. Growth factor receptors with tyrosine kinase activity phosphorylate and thus modulate the function of Shc. Specifically, the tyrosine phosphorylation of Shc residues 239/240 and 317 stimulates activation of Ras/MAPK via recruitment of the Grb2-Sos complex, with Shc binding Grb2. These residues are present in all Shc isoforms. *In vitro,* tyrosine residues 239/240 are phosphorylated by the tyrosine kinase Src, while stimulation of hematopoietic cells with interleukin 3 (IL-3) results in Shc phosphorylation, primarily on residues Tyr 239 and Tyr 317. Similarly, Insulin and EGF stimulate the phosphorylation of Shc and the subsequent binding of Shc and Grb2. Shc has a role in Insulin-induced mitogenesis by competing with IRS to bind to the Insulin receptor. The human Shc gene maps to chromosome 1q21.3.

REFERENCES

1. Pelicci, G., et al. 1992. A novel transforming protein (Shc) with an SH2 domain is implicated in mitogenic signal transduction. Cell 70: 93-104.
2. McGlade, J., et al. 1992. Shc proteins are phosphorylated and regulated by the v-Src and v-Fps protein-tyrosine kinases. Proc. Natl. Acad. Sci. USA 89: 8869-8873.
3. van der Geer, P., et al. 1996. The Shc adaptor protein is highly phosphorylated at conserved, twin tyrosine residues (Y239/ 240) that mediate protein-protein interactions. Curr. Biol. 6: 1435-1444.
4. Gotoh, N., et al. 1997. Tyrosine phosphorylation sites at amino acids 239 and 240 of Shc are involved in epidermal growth factor-induced mitogenic signaling that is distinct from Ras/mitogen-activated protein kinase activation. Mol. Cell. Biol. 17: 1824-1831.
5. Ishihara, H., et al. 1998. Relative involvement of Shc Tyrosine 239/240 and Tyrosine 317 on Insulin induced mitogenic signaling in rat1 fibroblasts expressing Insulin receptors. Biochem. Biophys. Res. Commun. 252: 139-144.

CHROMOSOMAL LOCATION

Genetic locus: SHC1 (human) mapping to 1q21.3; Shc1 (mouse) mapping to 3 F1.

SOURCE

p-Shc (Tyr 317) is an affinity purified goat polyclonal antibody raised against a short amino acid sequence containing Tyr 317 phosphorylated Shc of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-18075 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-Shc (Tyr 317) is recommended for detection of Tyr 317 phosphorylated Shc 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-Shc (Tyr 317) is also recommended for detection of correspondingly phosphorylated Shc in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Shc siRNA (h): sc-29480, Shc siRNA (m): sc-29481, Shc shRNA Plasmid (h): sc-29480-SH, Shc shRNA Plasmid (m): sc-29481-SH, Shc shRNA (h) Lentiviral Particles: sc-29480-V and Shc shRNA (m) Lentiviral Particles: sc-29481-V.

Molecular Weight of p66Shc isoforms: 63 kDa.

Molecular Weight of p52Shc: 52 kDa.

Molecular Weight of p46Shc: 47 kDa.

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.

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.