

p-Shc (73.Tyr 349/350): sc-293148

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. Liu, S.K., et al. 1998. Gads is a novel SH2 and SH3 domain-containing adaptor protein that binds to tyrosine-phosphorylated Shc. *Oncogene* 17: 3073-3082.
6. 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.
7. Migliaccio, E., et al. 1999. The p66^{shc} adaptor protein controls oxidative stress response and life span in mammals. *Nature* 402: 309-313.
8. Velazquez, L., et al. 2000. The Shc adaptor protein forms interdependent phosphotyrosine-mediated protein complexes in mast cells stimulated with interleukin 3. *Blood* 96: 132-138.

CHROMOSOMAL LOCATION

Genetic locus: SHC1 (human) mapping to 1q21.3; Shc3 (mouse) mapping to 13 A5.

SOURCE

p-Shc (73.Tyr 349/350) is a mouse monoclonal antibody raised against a short amino acid sequence containing Tyr 349 and Tyr 350 phosphorylated Shc of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-Shc (73.Tyr 349/350) is recommended for detection of Tyr 349 and Tyr 350 phosphorylated Shc of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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 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 p-Shc p66Shc isoform: 63 kDa.

Molecular Weight of p-Shc p52Shc isoform: 52 kDa.

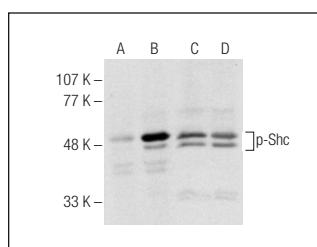
Molecular Weight of p-Shc p46Shc isoform: 47 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, RT-4 whole cell lysate: sc-364257 or A549 cell lysate: sc-2413.

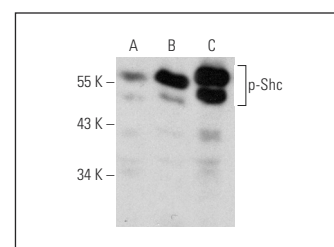
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A 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



Western blot analysis of Shc phosphorylation in untreated (A,C) and EGF treated (B,D) HEK293 whole cell lysates. Antibodies tested include p-Shc (73.Tyr 349/350): sc-293148 (A,B) and Shc (H-108): sc-1695 (C,D).



p-Shc (73.Tyr 349/350): sc-293148. Western blot analysis of Shc phosphorylation in A549 (A), HeLa (B) and RT-4 (C) whole cell lysates.

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. Not for resale.