

# p-Shc (1E3): sc-81519

## 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.
6. Liu, S.K. and McGlade, C.J. 1998. Gads is a novel SH2 and SH3 domain-containing adaptor protein that binds to tyrosine-phosphorylated Shc. *Oncogene* 17: 3073-3082.
7. Migliaccio, E., et al. 1999. The p66Shc adaptor protein controls oxidative stress response and life span in mammals. *Nature* 402: 309-313.

## CHROMOSOMAL LOCATION

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

## SOURCE

p-Shc (1E3) is a mouse monoclonal antibody raised against a synthetic phosphopeptide corresponding to amino acid residues surrounding Tyr 239/240 of Shc of human origin.

## PRODUCT

Each vial contains 50 µg IgG<sub>1</sub> in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

## APPLICATIONS

p-Shc (1E3) is recommended for detection of Tyr 239 and 240 dually phosphorylated Shc of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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.

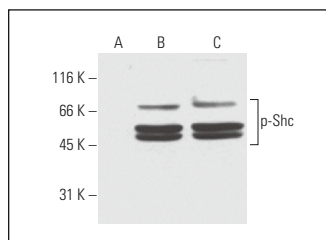
Molecular Weight of p-Shc p66Shc isoform: 63 kDa.

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

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

Positive Controls: EGF-stimulated A549 whole cell lysate or pervanadate-treated A549 whole cell lysate.

## DATA



p-Shc (1E3): sc-81519. Western blot analysis of Shc phosphorylation in untreated (A) EGF-stimulated (B) or pervanadate-treated (C) A549 whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Barros, P., et al. 2023. YES1 kinase mediates the membrane removal of rescued F508del-CFTR in airway cells by promoting MAPK pathway activation via SHC1. *Biomolecules* 13: 949.

## 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](http://www.scbt.com) for detailed protocols and support products.