



## p-Shc (6E10): sc-81520

### 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 p66<sup>shc</sup> 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.
9. Sasaoka, T., et al. 2000. The functional significance of Shc in Insulin signaling as a substrate of the Insulin receptor. *Endocr. J.* 47: 373-381.

### CHROMOSOMAL LOCATION

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

### RESEARCH USE

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

### SOURCE

p-Shc (6E10) is a mouse monoclonal antibody raised against a synthetic phosphopeptide corresponding to amino acids 33-39 of p-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 (6E10) is recommended for detection of Ser 36 phosphorylated Shc of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

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 isoform: 63 kDa.

Molecular Weight of p52Shc isoform: 52 kDa.

Molecular Weight of p46Shc isoform: 47 kDa.

### SELECT PRODUCT CITATIONS

1. Xiao, D. and Singh, S.V. 2010. p66<sup>shc</sup> is indispensable for phenethyl isothiocyanate-induced apoptosis in human prostate cancer cells. *Cancer Res.* 70: 3150-3158.
2. Miyazawa, M. and Tsuji, Y. 2014. Evidence for a novel antioxidant function and isoform-specific regulation of the human p66Shc gene. *Mol. Biol. Cell* 25: 2116-2127.
3. Guo, P., et al. 2016. Effect and mechanism of fuzhisan and donepezil on the sirtuin 1 pathway and amyloid precursor protein metabolism in PC12 cells. *Mol. Med. Rep.* 13: 3539-3546.
4. Zheng, W., et al. 2019. Carvedilol alleviates diabetic cardiomyopathy in diabetic rats. *Exp. Ther. Med.* 17: 479-487.

### STORAGE

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

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.