SANTA CRUZ BIOTECHNOLOGY, INC.

Shc siRNA (h): sc-29480

BACKGROUND

Growth factor triggering of protein tyrosine kinase receptors induces signals that cascade to the nucleus activating mitogenic, as well as other, responses. Critical components of this process include adapter proteins such as Shc and IRS-1 that lack detectable catalytic activity. These are immediate substrates of receptor tyrosine kinase activity and serve to physically link activated receptors to downstream signaling components. Whereas Shc has been implicated in signaling by diverse receptor families, IRS-1 serves primarily as the major Insulin receptor substrate. Shc also participates in Insulin signaling by linking the Insulin receptor to Ras by forming complexes with the adapter protein GRB2 and Sos independently of IRS-1. A protein immunologically related to IRS-1, originally designated 4PS and now known as IRS-2, was shown to become highly tyrosine phosphorylated in response to IL-4 or IGF-1 in cells lacking IRS-1. An additional member of this family of signaling intermediates, Shb, is a SH2-containing protein with characteristic proline-rich domains.

CHROMOSOMAL LOCATION

Genetic locus: SHC1 (human) mapping to 1q21.3.

PRODUCT

Shc siRNA (h) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Shc shRNA Plasmid (h): sc-29480-SH and Shc shRNA (h) Lentiviral Particles: sc-29480-V as alternate gene silencing products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Shc siRNA (h) is recommended for the inhibition of Shc expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

Shc (PG-797): sc-967 is recommended as a control antibody for monitoring of Shc gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Shc gene expression knockdown using RT-PCR Primer: Shc (h)-PR: sc-29480-PR (20 µl, 434 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Fukushima, H., et al. 2009. Loss of ΔNp63α promotes invasion of urothelial carcinomas via N-cadherin/Src homology and collagen/extracellular signal-regulated kinase pathway. Cancer Res. 69: 9263-9270.
2. Xiao, D. and Singh, S.V. 2010. $p66^{Shc}$ is indispensable for phenethyl isothiocyanate-induced apoptosis in human prostate cancer cells. Cancer Res. 70: 3150-3158.
3. Yan, X., et al. 2015. Ouabain elicits human glioblastoma cells apoptosis by generating reactive oxygen species in ERK-p66SHC-dependent pathway. Mol. Cell. Biochem. 398: 95-104.
4. Yuan, Y., et al. 2015. P53 contributes to cisplatin induced renal oxidative damage via regulating p66shc and MnSOD. Cell. Physiol. Biochem. 37: 1240-1256.
5. Loureiro, C.A., et al. 2020. A SYK/SHC1 pathway regulates the amount of CFTR in the plasma membrane. Cell. Mol. Life Sci. 77: 4997-5015.
6. Guo, G., et al. 2022. EGFR ligand shifts the role of EGFR from oncogene to tumour suppressor in EGFR-amplified glioblastoma by suppressing invasion through BIN3 upregulation. Nat. Cell Biol. 24: 1291-1305.
7. 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.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.