

STS-1 siRNA (h): sc-76596

BACKGROUND

STS-1 (suppressor of T cell receptor signaling 1), also known as UBASH3B (ubiquitin associated and SH3 domain containing, B) or p70 (Cbl-interacting protein p70), is a member of the suppressor of TCR (T cell receptor) signaling family of proteins and negatively regulates signaling pathways downstream of the TCR. Localizing to the cytoplasm and nucleus, STS-1 is widely expressed with little to no expression in pancreas, ovary and heart. STS-1 contains an N-terminal UBA domain, one SH3 domain and a C-terminal domain that is similar to the catalytic domain found in phosphoglycerate mutases. STS-1 exhibits phosphatase activity and is recognized as a Cbl-interacting protein. Upon ligand binding, STS-1 is recruited to activated EGFR complexes and prevents the endocytosis of EGFR by inhibiting receptor internalization and reducing the number of endocytic vesicles containing EGFR. STS-1 is also capable of inhibiting the endocytosis of PDGFR, suggesting a role for STS-1 in regulating receptor tyrosine kinase endocytosis and controlling growth factor-induced cellular functions.

REFERENCES

1. Nagase, T., et al. 2001. Prediction of the coding sequences of unidentified human genes. XXII. The complete sequences of 50 new cDNA clones which code for large proteins. *DNA Res.* 8: 319-327.
2. Carpino, N., et al. 2002. Identification, cDNA cloning, and targeted deletion of p70, a novel, ubiquitously expressed SH3 domain-containing protein. *Mol. Cell. Biol.* 22: 7491-7500.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609201. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Kowanetz, K., et al. 2004. Suppressors of T cell receptor signaling STS-1 and STS-2 bind to Cbl and inhibit endocytosis of receptor tyrosine kinases. *J. Biol. Chem.* 279: 32786-32795.
5. Carpino, N., et al. 2004. Regulation of ZAP-70 activation and TCR signaling by two related proteins, STS-1 and STS-2. *Immunity* 20: 37-46.
6. Kleinman, H., et al. 2006. Crystallization and initial crystal characterization of the C-terminal phosphoglycerate mutase homology domain of STS-1. *Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun.* 62: 218-220.

CHROMOSOMAL LOCATION

Genetic locus: STS-1 (human) mapping to 11q24.1.

PRODUCT

STS-1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see STS-1 shRNA Plasmid (h): sc-76596-SH and STS-1 shRNA (h) Lentiviral Particles: sc-76596-V as alternate gene silencing products.

For independent verification of STS-1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-76596A, sc-76596B and sc-76596C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

STS-1 siRNA (h) is recommended for the inhibition of STS-1 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 μ M in 66 μ l. 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

STS-1 (E-8): sc-514612 is recommended as a control antibody for monitoring of STS-1 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 STS-1 gene expression knockdown using RT-PCR Primer: STS-1 (h)-PR: sc-76596-PR (20 μ l, 526 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.