



Shd siRNA (h): sc-97486

BACKGROUND

The SH2 (Src homology 2) domain is a structurally conserved motif that contains two α helices and seven β strands and is found in a variety of proteins that are involved in signal transduction throughout the cell. Specifically, the SH2 domain targets SH2 domain-containing proteins to tyrosine-phosphorylated sites, an event that can trigger a protein-protein interaction cascade which may ultimately effect gene expression and cellular function. Shb (SH2 domain-containing adapter protein b), Shd (SH2 domain-containing adapter protein d), She (SH2 domain-containing adapter protein e) and Shf (SH2 domain-containing adapter protein f) are SH2 domain-containing proteins that play various roles throughout the cell. Shb is a widely expressed protein that localizes to both the cell membrane and the cytoplasm and plays an important role in signal transduction, mainly by linking activated proteins to downstream signaling targets, thereby propagating a signal cascade. Unlike Shb, Shd and Shf are thought to function as adaptor proteins, the former of which may be involved in apoptotic regulation.

REFERENCES

1. Sadowski, I., Stone, J.C. and Pawson, T. 1986. A noncatalytic domain conserved among cytoplasmic protein-tyrosine kinases modifies the kinase function and transforming activity of Fujinami sarcoma virus P130gag-fps. *Mol. Cell. Biol.* 6: 4396-4408.
2. Russell, R.B., Breed, J. and Barton, G.J. 1992. Conservation analysis and structure prediction of the SH2 family of phosphotyrosine binding domains. *FEBS Lett.* 304: 15-20.
3. Welsh, M., Mares, J., Karlsson, T., Lavergne, C., Breant, B. and Claesson-Welsh, L. 1994. Shb is a ubiquitously expressed Src homology 2 protein. *Oncogene* 9: 19-27.
4. Karlsson, T., Songyang, Z., Landgren, E., Lavergne, C., Di Fiore, P.P., Anafi, M., Pawson, T., Cantley, L.C., Claesson-Welsh, L. and Welsh, M. 1995. Molecular interactions of the Src homology 2 domain protein Shb with phosphotyrosine residues, tyrosine kinase receptors and Src homology 3 domain proteins. *Oncogene* 10: 1475-1483.
5. Karlsson, T. and Welsh, M. 1996. Apoptosis of NIH3T3 cells overexpressing the Src homology 2 domain protein Shb. *Oncogene* 13: 955-961.
6. Karlsson, T., Kullander, K. and Welsh, M. 1998. The Src homology 2 domain protein Shb transmits basic fibroblast growth factor- and nerve growth factor-dependent differentiation signals in PC12 cells. *Cell Growth Differ.* 9: 757-766.
7. Lindholm, C.K., Frantz, J.D., Shoelson, S.E. and Welsh, M. 2000. Shf, a Shb-like adapter protein, is involved in PDGF- α -receptor regulation of apoptosis. *Biochem. Biophys. Res. Commun.* 278: 537-543.
8. Hooshmand-Rad, R., Lu, L., Heldin, C.H., Claesson-Welsh, L. and Welsh, M. 2000. Platelet-derived growth factor-mediated signaling through the Shb adaptor protein: effects on cytoskeletal organization. *Exp. Cell Res.* 257: 245-254.

CHROMOSOMAL LOCATION

Genetic locus: SHD (human) mapping to 19p13.3.

PRODUCT

Shd 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 Shd shRNA Plasmid (h): sc-97486-SH and Shd shRNA (h) Lentiviral Particles: sc-97486-V as alternate gene silencing products.

For independent verification of Shd (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-97486A, sc-97486B and sc-97486C.

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

Shd siRNA (h) is recommended for the inhibition of Shd 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Shd gene expression knockdown using RT-PCR Primer: Shd (h)-PR: sc-97486-PR (20 μ l). 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.