SANTA CRUZ BIOTECHNOLOGY, INC.

SOCS-4 siRNA (m): sc-63051

BACKGROUND

Members of the suppressor of cytokine signaling (SOCS) family of proteins contain C-terminal regions of homology called the SOCS box, which serves to couple SOCS proteins and their binding partners with the Elongin B/C complex. Several other families of proteins also contain SOCS boxes, but differ from the SOCS proteins in the type of domain they contain upstream of the SOCS box. SOCS-4 (suppressor of cytokine signaling 4), also known as SOCS7, is a 440 amino acid protein that contains one SH2 domain and one SOCS box domain, the latter of which mediates interaction with the Elongin B/C complex. Involved in the pathway of protein modification, SOCS-4 exhibits E3 ubiquitin-protein ligase activity and functions to mediate the ubiquitination and subsequent proteasomal degradation of target proteins.

REFERENCES

1. Kamura, T., Sato, S., Haque, D., Liu, L., Kaelin, W.G., Conaway, R.C. and Conaway, J.W. 1998. The Elongin BC complex interacts with the conserved SOCS-box motif present in members of the SOCS, ras, WD-40 repeat, and ankyrin repeat families. Genes Dev. 12: 3872-3881.
2. Zhang, J.G., Farley, A., Nicholson, S.E., Willson, T.A., Zugaro, L.M., Simpson, R.J., Moritz, R.L., Cary, D., Richardson, R., Hausmann, G., Kile, B.J., Kent, S.B., Alexander, W.S., Metcalf, D., Hilton, D.J., et al. 1999. The conserved SOCS box motif in suppressors of cytokine signaling binds to Elongins B and C and may couple bound proteins to proteasomal degradation. Proc. Natl. Acad. Sci. USA 96: 2071-2076.
3. Kile, B.T. and Alexander, W.S. 2001. The suppressors of cytokine signalling (SOCS). Cell. Mol. Life Sci. 58: 1627-1635.
4. Larsen, L. and Röpke, C. 2002. Suppressors of cytokine signalling: SOCS. APMIS 110: 833-844.
5. Kile, B.T., Schulman, B.A., Alexander, W.S., Nicola, N.A., Martin, H.M. and Hilton, D.J. 2002. The SOCS box: a tale of destruction and degradation. Trends Biochem. Sci. 27: 235-241.
6. Kario, E., Marmor, M.D., Adamsky, K., Citri, A., Amit, I., Amariglio, N., Rechavi, G. and Yarden, Y. 2005. Suppressors of cytokine signaling 4 and 5 regulate epidermal growth factor receptor signaling. J. Biol. Chem. 280: 7038-7048.
7. Bullock, A.N., Rodriguez, M.C., Debreczeni, J.E., Songyang, Z. and Knapp, S. 2007. Structure of the SOCS4-ElonginB/C complex reveals a distinct SOCS box interface and the molecular basis for SOCS-dependent EGFR degradation. Structure 15: 1493-1504.

CHROMOSOMAL LOCATION

Genetic locus: Socs4 (mouse) mapping to 14 C1.

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.

PRODUCT

SOCS-4 siRNA (m) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SOCS-4 shRNA Plasmid (m): sc-63051-SH and SOCS-4 shRNA (m) Lentiviral Particles: sc-63051-V as alternate gene silencing products.

For independent verification of SOCS-4 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-63051A, sc-63051B and sc-63051C.

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

SOCS-4 siRNA (m) is recommended for the inhibition of SOCS-4 expression in mouse 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SOCS-4 gene expression knockdown using RT-PCR Primer: SOCS-4 (m)-PR: sc-63051-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.