SANTA CRUZ BIOTECHNOLOGY, INC.

SOCS-3 siRNA (m): sc-41001

BACKGROUND

The SOCS (suppressor of cytokine signaling) gene family consists of a group of proteins that negatively regulate cytokine signal transduction. The SOCS family proteins contain a central SH2 domain and a carboxy-terminal region termed the "SOCS box". The SOCS-1 (also called SSI-1 and JAB), SOCS-2 (also called SSI-2 and CIS2) and SOCS-3 (also called SSI-3 and CIS3) genes are known to be upregulated by IL-6 and other cytokines. SOCS-4, SOCS-5, SOCS-6 and SOCS-7 were identified by their sequence homology with the SOCS box. CIS (for cytokine-inducible SH2-containing protein) is also a member of the SOCS family.

CHROMOSOMAL LOCATION

Genetic locus: Socs3 (mouse) mapping to 11 E2.

PRODUCT

SOCS-3 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-3 shRNA Plasmid (m): sc-41001-SH and SOCS-3 shRNA (m) Lentiviral Particles: sc-41001-V as alternate gene silencing products.

For independent verification of SOCS-3 (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-41001A, sc-41001B and sc-41001C.

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-3 siRNA (m) is recommended for the inhibition of SOCS-3 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.

GENE EXPRESSION MONITORING

SOCS-3 (6A463): sc-73045 is recommended as a control antibody for monitoring of SOCS-3 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SOCS-3 gene expression knockdown using RT-PCR Primer: SOCS-3 (m)-PR: sc-41001-PR (20 µl, 496 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Paul, B., et al. 2009. Status of Stat3 in an ovalbumin-induced mouse model of asthma: analysis of the role of Socs3 and IL-6. Int. Arch. Allergy Immunol. 148: 99-108.
2. Lee, K.H., et al. 2012. Proteasomal degradation of Nod2 protein mediates tolerance to bacterial cell wall components. J. Biol. Chem. 287: 39800-39811.
3. Hovsepian, E., et al. 2013. IL-10 inhibits the NFκB and ERK/MAPK-mediated production of pro-inflammatory mediators by up-regulation of SOCS-3 in *Trypanosoma cruzi*-infected cardiomyocytes. PLoS ONE 8: e79445.
4. Verma, M., et al. 2014. DNA methyltransferase 1(DNMT1) induced the expression of suppressors of cytokine signaling3 (Socs3) in a mouse model of asthma. Mol. Biol. Rep. 41: 4413-4424.
5. Ando, T., et al. 2015. Pretreatment of LPS inhibits IFN-β-induced STAT1 phosphorylation through SOCS3 induced by LPS. Biomed. Pharmacother. 76: 1-5.
6. Kimura, A., et al. 2016. Exaggerated arsenic nephrotoxicity in female mice through estrogen-dependent impairments in the autophagic flux. Toxicology 339: 9-18.
7. Sun, D., et al. 2016. Matrine suppresses airway inflammation by down-regulating SOCS-3 expression via inhibition of NFκB signaling in airway epithelial cells and asthmatic mice. Biochem. Biophys. Res. Commun. 477: 83-90.
8. Zhang, Y., et al. 2017. Lidocaine alleviates morphine tolerance via AMPK-SOCS3-dependent neuroinflammation suppression in the spinal cord. J. Neuroinflammation 14: 211.
9. Fan, Y.X., et al. 2018. Induction of suppressor of cytokine signaling 3 via HSF-1-HSP70-TLR4 axis attenuates neuroinflammation and ameliorates postoperative pain. Brain Behav. Immun. 68: 111-122.
10. Chandrakar, P., et al. 2019. Differential induction of SOCS isoforms by *Leishmania donovani* impairs macrophage-T cell cross-talk and host defense. J. Immunol. 204: 596-610.

RESEARCH USE

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