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### SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

[mail@szabo-scandic.com](mailto:mail@szabo-scandic.com)

[www.szabo-scandic.com](http://www.szabo-scandic.com)

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

# SOCS-3 siRNA (r): sc-270156

## 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.

## REFERENCES

1. Yoshimura, A., et al. 1995. A novel cytokine-inducible gene CIS encodes an SH2-containing protein that binds to tyrosine-phosphorylated interleukin 3 and erythropoietin receptors. *EMBO J.* 14: 2816-2826.
2. Matsumoto, A., et al. 1997. CIS, a cytokine inducible SH2 protein, is a target of the JAK-Stat5 pathway and modulates Stat5 activation. *Blood* 89: 3148-3154.
3. Starr, R., et al. 1997. A family of cytokine-inducible inhibitors of signalling. *Nature* 387: 917-921.
4. Nicholson, S.E., et al. 1998. The SOCS proteins: a new family of negative regulators of signal transduction. *J. Leukoc. Biol.* 63: 665-668.
5. Hilton, D.J., et al. 1998. Twenty proteins containing a C-terminal SOCS box form five structural classes. *Proc. Natl. Acad. Sci. USA* 95: 114-119.
6. van de Geijn, G.J., et al. 2004. Distinct activities of suppressor of cytokine signaling (SOCS) proteins and involvement of the SOCS box in controlling G-CSF signaling. *J. Leukoc. Biol.* 76: 237-244.
7. Torsoni, M.A., et al. 2004. Angiotensin II (AngII) induces the expression of suppressor of cytokine signaling (SOCS)-3 in rat hypothalamus—a mechanism for desensitization of AngII signaling. *J. Endocrinol.* 181: 117-128.

## CHROMOSOMAL LOCATION

Genetic locus: *Socs3* (rat) mapping to 10q32.3.

## PRODUCT

SOCS-3 siRNA (r) is a pool of 2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SOCS-3 shRNA Plasmid (r): sc-270156-SH and SOCS-3 shRNA (r) Lentiviral Particles: sc-270156-V as alternate gene silencing products.

For independent verification of SOCS-3 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270156A and sc-270156B.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

SOCS-3 siRNA (r) is recommended for the inhibition of SOCS-3 expression in rat 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  $\mu$ M in 66  $\mu$ 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

SOCS-3 (SO1): sc-51699 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 (r)-PR: sc-270156-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Heldsinger, A., et al. 2014. Ghrelin induces leptin resistance by activation of suppressor of cytokine signaling 3 expression in male rats: implications in satiety regulation. *Endocrinology* 155: 3956-3969.

## RESEARCH USE

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