SANTA CRUZ BIOTECHNOLOGY, INC.

G-CSFR siRNA (r): sc-270428

BACKGROUND

The diverse biological activities of G-CSF are initiated by the binding of G-CSF to a specific receptor (G-CSFR) that belongs to the cytokine/hematopoietic receptor superfamily. In contrast to the majority of hematopoietic receptors that are activated through the formation of heteromeric complexes composed of α, β and sometimes γ subunits, G-CSFR proteins are believed to form homodimeric complexes upon ligand binding. Four distinct alternative splice variants of G-CSFR have been described, one of which exists as a soluble receptor protein. Although G-CSFR lacks consensus motifs in its cytoplasmic domains that are characteristic of kinase activities, certain sequences have been identified that are conserved among several members of the cytokine receptor superfamily. For example, the carboxy-terminal regions of G-CSFR contains a domain, designated box 3, that is only shared with the IL-6R subunit, gp130.

REFERENCES

1. Bazan, J.F. 1989. A novel family of growth factor receptors: a common binding domain in the growth hormone, Prolactin, erythropoietin and IL-6 receptors, and the p75 IL-2 receptor β chain. Biochem. Biophys. Res. Commun. 164: 788-795.
2. Larsen, A., et al. 1990. Expression cloning of human granulocyte colony-stimulating factor receptor: a structural mosaic of hematopoietin receptor, immunoglobulin, and Fibronectin domains. J. Exp. Med. 172: 1559-1570.
3. Fukunaga, R., et al. 1990. Three different mRNAs encoding human granulocyte colony-stimulating factor receptor. Proc. Natl. Acad. Sci. USA 87: 8702-8706.
4. Miyajima, A., et al. 1992. Cytokine receptors and signal transduction. Annu. Rev. Immunol. 10: 295-331.
5. Saito, M., et al. 1992. Molecular cloning of a murine IL-6 receptor-associated signal transducer, gp130, and its regulated expression *in vivo*. J. Immunol. 148: 4066-4071.
6. Cosman, D. 1993. The hematopoietin receptor superfamily. Cytokine 5: 95-106.
7. Ishizaka-Ikeda, E., et al. 1993. Signal transduction mediated by growth hormone receptor and its chimeric molecules with the granulocyte colony-stimulating factor. Proc. Natl. Acad. Sci. USA 90: 123-127.
8. Hiraoka, O., et al. 1994. Ligand binding domain of granulocyte colony-stimulating factor receptor. J. Biol. Chem. 269: 22412-22419.
9. Dong, F., et al. 1995. A point mutation in the granulocyte colony-stimulating factor receptor (G-CSF-R) gene in a case of acute myeloid leukemia results in the overexpression of a novel G-CSF-R isoform. Blood 85: 902-911.

CHROMOSOMAL LOCATION

Genetic locus: Csf3r (rat) mapping to 5q36.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

G-CSFR 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see G-CSFR shRNA Plasmid (r): sc-270428-SH and G-CSFR shRNA (r) Lentiviral Particles: sc-270428-V as alternate gene silencing products.

For independent verification of G-CSFR (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-270428A and sc-270428B.

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

G-CSFR siRNA (r) is recommended for the inhibition of G-CSFR 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 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 G-CSFR gene expression knockdown using RT-PCR Primer: G-CSFR (r)-PR: sc-270428-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Li, L., et al. 2015. G-CSF attenuates neuroinflammation and stabilizes the blood-brain barrier via the PI3K/Akt/GSK-3β signaling pathway following neonatal hypoxia-ischemia in rats. Exp. Neurol. 272: 135-144.

RESEARCH USE

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