SANTA CRUZ BIOTECHNOLOGY, INC.

IL-6 siRNA (h): sc-39627

BACKGROUND

Interleukin-6, or IL-6, is a multifunctional protein, 212 amino acids in length, that plays critical roles in host defense, immune response and hematopoiesis. IL-6 is constitutively expressed by epidermal Langerhans cells and its expression is induced in stimulated keratinocytes. IL-6, IL-1β and TNFα act as endogenous pyrogens, regulating the fever response to bacterial invasion. The IL-6 receptor is a trimeric complex composed of an IL-6-specific α chain and a homodimer of the gp130 glycoprotein common to the IL-6, IL-11, CNTF, OSM and LIF receptors. Stimulation with IL-6 leads to gp130 homodimerization and the activation of associated kinases JAK1 and JAK2. Once activated, JAK1 and JAK2 phosphorylate Stat3, causing its nuclear translocation and transcription of Stat3-responsive genes. IL-6 has also been shown to activate the Ras/MAP kinase pathway, which regulates NFIL6 transcription.

CHROMOSOMAL LOCATION

Genetic locus: IL6 (human) mapping to 7p15.3.

PRODUCT

IL-6 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see IL-6 shRNA Plasmid (h): sc-39627-SH and IL-6 shRNA (h) Lentiviral Particles: sc-39627-V as alternate gene silencing products.

For independent verification of IL-6 (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-39627A, sc-39627B and sc-39627C.

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

IL-6 siRNA (h) is recommended for the inhibition of IL-6 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 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

IL-6 (E-4): sc-28343 is recommended as a control antibody for monitoring of IL-6 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 IL-6 gene expression knockdown using RT-PCR Primer: IL-6 (h)-PR: sc-39627-PR (20 µl, 491 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chou, C.H., et al. 2009. Radiation-induced interleukin-6 expression through MAPK/p38/NFκB signaling pathway and the resultant antiapoptotic effect on endothelial cells through Mcl-1 expression with sIL6-Rα. Int. J. Radiat. Oncol. Biol. Phys. 75: 1553-1561.
2. Yan, H.Q., et al. 2014. Interleukin 6 augments lung cancer chemotherapeutic resistance via ataxia-telangiectasia mutated/NFκB pathway activation. Cancer Sci. 105: 1220-1227.
3. Suh, Y.A., et al. 2015. Inhibition of IL-6/Stat3 axis and targeting Axl and Tyro3 receptor tyrosine kinases by apigenin circumvent taxol resistance in ovarian cancer cells. Int. J. Oncol. 46: 1405-1411.
4. Chen, S.F., et al. 2017. Matrine increases the inhibitory effects of afatinib on H1975 cells via the IL-6/JAK1/Stat3 signaling pathway. Mol. Med. Rep. 16: 2733-2739.
5. Ben-Shoshan, S.O., et al. 2017. ADAR1 deletion induces NFκB and interferon signaling dependent liver inflammation and fibrosis. RNA Biol. 14: 587-602.
6. Zanotto-Filho, A., et al. 2017. Inflammatory landscape of human brain tumors reveals an NFκB dependent cytokine pathway associated with mesenchymal glioblastoma. Cancer Lett. 390: 176-187.
7. Wu, X., et al. 2017. IL-6 secreted by cancer-associated fibroblasts promotes epithelial-mesenchymal transition and metastasis of gastric cancer via JAK2/Stat3 signaling pathway. Oncotarget 8: 20741-20750.
8. Meng, J., et al. 2020. ID1 confers cancer cell chemoresistance through Stat3/ATF6-mediated induction of autophagy. Cell Death Dis. 11: 137.
9. Li, J., et al. 2020. MAOA-mediated reprogramming of stromal fibroblasts promotes prostate tumorigenesis and cancer stemness. Oncogene 39: 3305-3321.
10. Alraouji, N.N., et al. 2020. Tocilizumab potentiates cisplatin cytotoxicity and targets cancer stem cells in triple-negative breast cancer. Mol. Carcinog. 59: 1041-1051.

RESEARCH USE

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