SANTA CRUZ BIOTECHNOLOGY, INC.

IL-10 siRNA (h): sc-39634

BACKGROUND

Interleukin-10, or IL-10, is a 178 amino acid protein that is primarily secreted by TH2 clones. IL-10 has dual functions, the first of which is the suppression of cytokine production by TH1 clones responding to antigen presented by monocyte and macrophage antigen presenting cells (APCs). The second function consists of the inhibition of response of cytokine targeted cells, possibly by the downregulation of CD25 (the IL-2 receptor) on macrophages and B lymphocytes. Human and murine IL-10 exhibit 81% sequence identity at the amino acid level and share 73% identity at the cDNA level. Both human and murine IL-10 are acid-liable and exist as non-covalently-linked homodimers in solution. IL-10 exerts its biological activity through the IL-10 receptor (IL-10R), a glycoprotein whose expression can be induced in cultured macrophages and fibroblasts by lipopolysaccharide (LPS) stimulation. IL-10 expression has been shown to be elevated in HIV-1 infected individuals and has been implicated in the progression of the disease.

CHROMOSOMAL LOCATION

Genetic locus: IL10 (human) mapping to 1q32.1.

PRODUCT

IL-10 siRNA (h) is a target-specific 19-25 nt siRNA 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-10 shRNA Plasmid (h): sc-39634-SH and IL-10 shRNA (h) Lentiviral Particles: sc-39634-V as alternate gene silencing 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 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-10 siRNA (h) is recommended for the inhibition of IL-10 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-10 (E-10): sc-8438 is recommended as a control antibody for monitoring of IL-10 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor IL-10 gene expression knockdown using RT-PCR Primer: IL-10 (h)-PR: sc-39634-PR (20 µl, 485 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Görgün, G., et al. 2005. Chronic lymphocytic leukemia cells induce changes in gene expression of CD4 and CD8 T cells. J. Clin. Invest. 115: 1797-1805.
2. Zhang, W., et al. 2011. Macrophage differentiation and polarization via phosphatidylinositol 3-kinase/Akt-ERK signaling pathway conferred by serum amyloid P component. J. Immunol. 187: 1764-1777.
3. Li, G., et al. 2014. Feedback activation of STAT3 mediates trastuzumab resistance via upregulation of MUC1 and MUC4 expression. Oncotarget 5: 8317-8329.
4. Kim, S.K., et al. 2017. Carbon monoxide decreases interleukin-1β levels in the lung through the induction of pyrin. Cell. Mol. Immunol. 14: 349-359.
5. Burks, S.R., et al. 2018. Mesenchymal stromal cell potency to treat acute kidney injury increased by ultrasound-activated interferon-γ/interleukin-10 axis. J. Cell. Mol. Med. 22: 6015-6025.
6. Gao, L., et al. 2019. IL-10 knockdown with siRNA enhances the efficacy of Doxorubicin chemotherapy in EBV-positive tumors by inducing lytic cycle via PI3K/p38 MAPK/NFκB pathway. Cancer Lett. 462: 12-22.
7. Jeljeli, M., et al. 2020. Macrophage immune memory controls endometriosis in mice and humans. Cell Rep. 33: 108325.
8. Park, H.S., et al. 2023. Capmatinib suppresses LPS-induced interaction between HUVECs and THP-1 monocytes through suppression of inflammatory responses. Biomed. J. 46: 100534.
9. Choi, J.Y., et al. 2024. Tumor-derived miR-6794-5p enhances cancer growth by promoting M2 macrophage polarization. Cell Commun. Signal. 22: 190.

RESEARCH USE

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