SANTA CRUZ BIOTECHNOLOGY, INC.

IL-2 siRNA (m): sc-39620

BACKGROUND

Lymphokines are a group of signaling molecules involved in communication between cells of the immune system. Lymphokines secreted by activated lymphocytes include proteins such as interleukin-2. This protein is secreted primarily by helper T cells that have been activated through the T cell receptor complex or by other mitogens. Cells targeted by IL-2 include activated T helper and cytotoxic T cells, inducing their proliferation. The secretion of IL-2 can also act as a growth factor for B cells. To date, three different IL-2-dependent signal transduction pathways have been identified: the c-Fos/c-Jun induction pathway mediated by Src family protein-tyrosine kinases, the c-Myc induction pathway and the Rapamycin-sensitive pathway, all of which result in the induction of Bcl-2. In addition, the transcription factor NFAT has been shown to play a major role in the regulation of IL-2 transcription and correlates to an age-related decline in the expression of IL-2.

REFERENCES

1. Smith, K.A. 1980. T cell growth factor. Immunol. Rev. 51: 337-357.
2. Taniguchi, T., et al. 1983. Structure and expression of a cloned cDNA for human interleukin-2. Nature 302: 305-310.
3. Lowenthal, J.W., et al. 1985. Similarities between interleukin-2 receptor number and affinity on activated B and T lymphocytes. Nature 315: 669-672.
4. Guy, G.R., et al. 1990. Lymphokine signal transduction. Prog. Growth Factor Res. 2: 45-70.
5. Germann, T., et al. 1991. Components of an antigen-/T cell receptor-independent pathway of lymphokine production. Eur. J. Immunol. 21: 1857-1861.
6. Miyazaki, T., et al. 1995. Three distinct IL-2 signaling pathways mediated by Bcl-2, c-Myc, and Lck cooperate in hematopoietic cell proliferation. Cell 81: 223-231.
7. Eljaafari, A., et al. 1995. Contribution of p56Lck to the upregulation of cytokine production and T cell proliferation by IL-2 in human CD3-stimulated T cell clones. Cell. Immunol. 160: 152-156.
8. Pahlavani, M.A., et al. 1995. The age-related decline in the induction of IL-2 transcription is correlated to changes in the transcription factor NFAT. Cell. Immunol. 165: 84-91.

CHROMOSOMAL LOCATION

Genetic locus: Il2 (mouse) mapping to 3 B.

PRODUCT

IL-2 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 IL-2 shRNA Plasmid (m): sc-39620-SH and IL-2 shRNA (m) Lentiviral Particles: sc-39620-V as alternate gene silencing products.

For independent verification of IL-2 (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-39620A, sc-39620B and sc-39620C.

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-2 siRNA (m) is recommended for the inhibition of IL-2 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

IL-2 (F-5): sc-133118 is recommended as a control antibody for monitoring of IL-2 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-IgGλ BP-HRP: sc-516132 or m-IgGλ BP-HRP (Cruz Marker): sc-516132-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-IgGλ BP-FITC: sc-516185 or m-IgGλ BP-PE: sc-516186 (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-2 gene expression knockdown using RT-PCR Primer: IL-2 (m)-PR: sc-39620-PR (20 µl, 488 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

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