

# IL-4R $\alpha$ siRNA (h): sc-35661

## BACKGROUND

The IL-2 receptor is a multicomponent complex consisting of three subunits,  $\alpha$ ,  $\beta$  and  $\gamma$ , each of which is required for high affinity binding of IL-2. The  $\alpha$  chain functions primarily in binding IL-2, whereas the  $\beta$  and  $\gamma$  chains contribute to IL-2 binding and are essential to IL-2-induced activation of signaling pathways leading to T cell growth. Both IL-4R and IL-7R were initially described as single chain, high-affinity ligand-binding cytokine receptors. However, it is now well established that the IL-2R $\gamma$  chain functions as a second subunit of the high affinity IL-4R and IL-7R receptors. Consequently, the originally described subunits of these latter receptors are now referred to as IL-4R $\alpha$  and IL-7R $\alpha$ , respectively, while the common subunit is referred to as  $\gamma_c$ . Although the common  $\gamma$  chain enhances ligand binding in these three cytokine receptors, it has no capacity to bind these ligands on its own. There is evidence that the  $\gamma_c$  chain is also a subunit of IL-13R.

## REFERENCES

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2. Goodwin, R.G., et al. 1990. Cloning of the human and murine interleukin-7 receptors: demonstration of a soluble form and homology to a new receptor superfamily. *Cell* 60: 941-951.
3. Takeshita, T., et al. 1992. Cloning of the  $\gamma$  chain of the human IL-2 receptor. *Science* 257: 379-382.
4. Cao, X., et al. 1993. Characterization of cDNAs encoding the murine interleukin 2 receptor (IL-2R)  $\gamma$  chain: chromosomal mapping and tissue specificity of IL-2R  $\gamma$  chain expression. *Proc. Natl. Acad. Sci. USA* 90: 8464-8468.
5. Kondo, M., et al. 1993. Sharing of the interleukin-2 (IL-2) receptor  $\gamma$  chain between receptors for IL-2 and IL-4. *Science* 262: 1874-1877.
6. Russell, S.M., et al. 1993. Interleukin-2 receptor  $\gamma$  chain: a functional component of the interleukin-4 receptor. *Science* 262: 1880-1883.
7. Minami, Y., et al. 1993. The IL-2 receptor complex: its structure, function and target genes. *Annu. Rev. Immunol.* 11: 245-268.
8. He, Y.W., et al. 1995. Expression and function of the  $\gamma_c$  subunit of the IL-2, IL-4, and IL-7 receptors. *J. Immunol.* 154: 1596-1605.

## CHROMOSOMAL LOCATION

Genetic locus: IL4R (human) mapping to 16p12.1.

## PRODUCT

IL-4R $\alpha$  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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see IL-4R $\alpha$  shRNA Plasmid (h): sc-35661-SH and IL-4R $\alpha$  shRNA (h) Lentiviral Particles: sc-35661-V as alternate gene silencing products.

For independent verification of IL-4R $\alpha$  (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-35661A, sc-35661B and sc-35661C.

## 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

IL-4R $\alpha$  siRNA (h) is recommended for the inhibition of IL-4R $\alpha$  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  $\mu$ 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

IL-4R $\alpha$  (H-4): sc-28361 is recommended as a control antibody for monitoring of IL-4R $\alpha$  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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>TM</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor IL-4R $\alpha$  gene expression knockdown using RT-PCR Primer: IL-4R $\alpha$  (h)-PR: sc-35661-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.