

# IL-13R $\alpha$ 2 siRNA (h): sc-63339

## BACKGROUND

The Th2 cytokine interleukin-13 (IL-13) plays a critical role in allergen-induced airway hyper-responsiveness (AHR). Two different receptors exist for IL-13, designated IL-13R $\alpha$ 1 and 2. IL-13R $\alpha$ 1 exists as a heterodimer of IL-13R $\alpha$ 1 and IL-4R $\alpha$  as a signaling subunit, whereas IL-13R $\alpha$ 2 acts as a decoy receptor for IL-13. Furthermore, TNF $\alpha$  or IL-4 stimulation induces IL-13R $\alpha$ 2 upregulation, while IL-13R $\alpha$ 1 is constitutively expressed. Cell surface localization of IL-13R $\alpha$ 2 abrogates IL-13 signaling, thus IL-13 induced translocation of the receptor from the cytoplasm provides a mechanism for negative-feedback of IL-13 signaling. IL-13R $\alpha$ 1 expression is predominant in B cells, monocytes and T cells, whereas IL-13R $\alpha$ 2 expression is highest in glioma cells.

## REFERENCES

- Guo, J., et al. 1997. Chromosome mapping and expression of the human interleukin-13 receptor. *Genomics* 42: 141-145.
- Graber, P., et al. 1998. The distribution of IL-13 receptor  $\alpha$ 1 expression on B cells, T cells and monocytes and its regulation by IL-13 and IL-4. *Eur. J. Immunol.* 28: 4286-4298.
- Wu, A.H., et al. 2002. Molecular cloning of the rat IL-13  $\alpha$ 2 receptor cDNA and its expression in rat tissues. *J. Neurooncol.* 59: 99-105.
- Park, J.W., et al. 2003. Respiratory syncytial virus-induced airway hyper-responsiveness is independent of IL-13 compared with that induced by allergen. *J. Allergy Clin. Immunol.* 112: 1078-1087.
- Yasunaga, S., et al. 2003. The negative-feedback regulation of the IL-13 signal by the IL-13 receptor  $\alpha$ 2 chain in bronchial epithelial cells. *Cytokine* 24: 293-303.

## CHROMOSOMAL LOCATION

Genetic locus: IL13RA2 (human) mapping to Xq23.

## PRODUCT

IL-13R $\alpha$ 2 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-13R $\alpha$ 2 shRNA Plasmid (h): sc-63339-SH and IL-13R $\alpha$ 2 shRNA (h) Lentiviral Particles: sc-63339-V as alternate gene silencing products.

For independent verification of IL-13R $\alpha$ 2 (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-63339A, sc-63339B and sc-63339C.

## 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-13R $\alpha$ 2 siRNA (h) is recommended for the inhibition of IL-13R $\alpha$ 2 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-13R $\alpha$ 2 (2K8): sc-134363 is recommended as a control antibody for monitoring of IL-13R $\alpha$ 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-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>™</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-13R $\alpha$ 2 gene expression knockdown using RT-PCR Primer: IL-13R $\alpha$ 2 (h)-PR: sc-63339-PR (20  $\mu$ l, 424 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- He, C.H., et al. 2013. Chitinase 3-like 1 regulates cellular and tissue responses via IL-13 receptor  $\alpha$ 2. *Cell Rep.* 4: 830-841.
- Kang, M.A., et al. 2021. IL13R $\alpha$ 2 is involved in the progress of renal cell carcinoma through the JAK2/FOXO3 pathway. *J. Pers. Med.* 11: 284.

## 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.