SANTA CRUZ BIOTECHNOLOGY, INC.

IL-13Rα2 siRNA (m): sc-63340

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The Power to Question

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-13Rα1 and 2. IL-13Rα1 exists as a heterodimer of IL-13Rα1 and IL-4Rα as a signaling subunit, whereas IL-13Rα2 acts as a decoy receptor for IL-13. Furthermore, TNFα or IL-4 stimulation induces IL-13Rα2 upregulation, while IL-13Rα1 is constitutively expressed. Cell surface localization of IL-13Rα2 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-13Rα1 expression is predominant in B cells, monocytes and T cells, whereas IL-13Rα2 expression is highest in glioma cells.

REFERENCES

1. Guo, J., et al. 1997. Chromosome mapping and expression of the human interleukin-13 receptor. Genomics 42: 141-145.
2. Graber, P., et al. 1998. The distribution of IL-13 receptor α1 expression on B cells, T cells and monocytes and its regulation by IL-13 and IL-4. Eur. J. Immunol. 28: 4286-4298.
3. Wu, A.H., et al. 2002. Molecular cloning of the rat IL-13 α 2 receptor cDNA and its expression in rat tissues. J. Neurooncol. 59: 99-105.
4. Park, J.W., et al. 2003. Respiratory syncytial virus-induced airway hyperresponsiveness is independent of IL-13 compared with that induced by allergen. J. Allergy Clin. Immunol. 112: 1078-1087.
5. Yasunaga, S., et al. 2003. The negative-feedback regulation of the IL-13 signal by the IL-13 receptor α2 chain in bronchial epithelial cells. Cytokine 24: 293-303.
6. Yoshikawa, M., et al. 2003. TNF-α and IL-4 regulate expression of IL-13 receptor α2 on human fibroblasts. Biochem. Biophys. Res. Commun. 312: 1248-1255.
7. Kawakami, M., et al. 2004. Analysis of interleukin-13 receptor α2 expression in human pediatric brain tumors. Cancer 101: 1036-1042.
8. Myrtek, D., et al. 2004. Expression of interleukin-13 receptor α 1-subunit on peripheral blood eosinophils is regulated by cytokines. Immunology 112: 597-604.

CHROMOSOMAL LOCATION

Genetic locus: Il13ra2 (mouse) mapping to X F2.

PRODUCT

IL-13Rα2 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-13Rα2 shRNA Plasmid (m): sc-63340-SH and IL-13Rα2 shRNA (m) Lentiviral Particles: sc-63340-V as alternate gene silencing products.

For independent verification of IL-13Rα2 (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-63340A, sc-63340B and sc-63340C.

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-13Rα2 siRNA (m) is recommended for the inhibition of IL-13Rα2 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-13Rα2 (2K8): sc-134363 is recommended as a control antibody for monitoring of IL-13Rα2 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-13Rα2 gene expression knockdown using RT-PCR Primer: IL-13Rα2 (m)-PR: sc-63340-PR (20 µl). 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.