SANTA CRUZ BIOTECHNOLOGY, INC.

IL-12Rβ1 siRNA (m): sc-35650

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

IL-12, a heterodimeric cytokine composed of two disulfide-bonded glycoprotein subunits, p35 and p40, has pleiotrophic activities including stimulation of the proliferation of activated T and NK cells, induction of IFN-γ production by PBMCs, enhancement of the lytic activity of NK/LAK cells and promotion of T-helper (Th) 1 cell responses. The T cell response to IL-12 is mediated through two receptor proteins, designated IL-12Rβ1 and IL-12Rβ2. The genes encoding human IL-12Rβ1 and IL-12Rβ2 map to chromosomes 19p13.11 and 1p31.3, respectively. Increased IL-12Rβ2 expression is crucial in regulating Th1 differentiation, whereas IL-12Rβ1 expression is less restricted. Inhibition of IL-12 activity may provide treatment for diseases associated with pathologic Th1 responses, such as multiple sclerosis or Crohn's disease, while administration of recombinant IL-12 may aid in the treatment for allergic disorders and asthma.

REFERENCES

1. Gubler, U., et al. 1991. Coexpression of two distinct genes is required to generate secreted bioactive cytotoxic lymphocyte maturation factor. Proc. Natl. Acad. Sci. USA 88: 4143-4147.
2. Wolf, S.F., et al. 1991. Cloning of cDNA for natural killer cell stimulatory factor, a heterodimeric cytokine with multiple biologic effects on T and natural killer cells. J. Immunol. 146: 3074-3081.
3. Manetti, R.P., et al. 1993. Natural killer cell stimulatory factor interleukin 12 [IL-12] induces T helper type 1 (Th1)-specific immune responses and inhibits the development of IL-4-producing Th cells. J. Exp. Med. 177: 1199-1204.

CHROMOSOMAL LOCATION

Genetic locus: Il12rb1 (mouse) mapping to 8 B3.3.

PRODUCT

IL-12Rβ1 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-12Rβ1 shRNA Plasmid (m): sc-35650-SH and IL-12Rβ1 shRNA (m) Lentiviral Particles: sc-35650-V as alternate gene silencing products.

For independent verification of IL-12Rβ1 (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-35650A, sc-35650B and sc-35650C.

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-12Rβ1 siRNA (m) is recommended for the inhibition of IL-12Rβ1 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-12Rβ1 (E-6): sc-166805 is recommended as a control antibody for monitoring of IL-12Rβ1 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-12Rβ1 gene expression knockdown using RT-PCR Primer: IL-12Rβ1 (m)-PR: sc-35650-PR (20 µl, 583 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Li, F., et al. 2021. Irradiation haematopoiesis recovery orchestrated by IL-12/IL-12Rβ1/TYK2/Stat3-initiated osteogenic differentiation of mouse bone marrow-derived mesenchymal stem cells. Front. Cell Dev. Biol. 9: 729293.
2. Jung, Y.K., et al. 2023. The protective effect of IL-12/23 neutralizing antibody in sarcopenia associated with dextran sulfate sodium-induced experimental colitis. J. Cachexia Sarcopenia Muscle 14: 1096-1106.

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.