

IL-28R siRNA (h): sc-62497

BACKGROUND

IL-28R (interleukin-28 receptor α chain, cytokine receptor family 2 member 12, IFN- λ R1) is a 535 amino acid protein encoded by the human gene IL28RA. IL-28R belongs to the type II cytokine receptor family and contains one Fibronectin type III domain. It is a single-pass type I membrane protein found as a heterodimer with IL-10RB. This is a receptor for a small family of structurally-related cytokines that, like IFNs, are known to induce antiviral activity. The expression of IFN- λ (IL-28) mRNA is inducible by viral infection in several cell lines. The receptor complex (IL-28R) that is utilized by all three IFN- λ proteins for signaling is composed of two subunits, a receptor designated IL-28R and IL-10R2. Both receptor chains are constitutively expressed on a wide variety of human cell lines and tissues and signal through the JAK-Stat (Janus kinases-signal transducers and activators of transcription) pathway.

REFERENCES

1. Sheppard, P., et al. 2003. IL-28, IL-29 and their class II cytokine receptor IL-28R. *Nat. Immunol.* 4: 63-68.
2. Kotenko, S.V., et al. 2003. IFN- λ s mediate antiviral protection through a distinct class II cytokine receptor complex. *Nat. Immunol.* 4: 69-77.
3. Dumoutier, L., et al. 2004. Role of the interleukin (IL)-28 receptor tyrosine residues for antiviral and antiproliferative activity of IL-29/interferon- λ 1: similarities with type I interferon signaling. *J. Biol. Chem.* 279: 32269-32274.
4. Meager, A., et al. 2005. Biological activity of interleukins-28 and -29: comparison with type I interferons. *Cytokine* 31: 109-118.
5. Brand, S., et al. 2005. IL-28A and IL-29 mediate antiproliferative and antiviral signals in intestinal epithelial cells and murine CMV infection increases colonic IL-28A expression. *Am. J. Physiol. Gastrointest. Liver Physiol.* 289: G960-G968.
6. Chi, B., et al. 2006. α and λ interferon together mediate suppression of CD4 T cells induced by respiratory syncytial virus. *J. Virol.* 80: 5032-5040.
7. Osterlund, P.I., et al. 2007. IFN regulatory factor family members differentially regulate the expression of type III IFN (IFN- λ) genes. *J. Immunol.* 179: 3434-3442.

CHROMOSOMAL LOCATION

Genetic locus: IFNLR1 (human) mapping to 1p36.11.

PRODUCT

IL-28R 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see IL-28R shRNA Plasmid (h): sc-62497-SH and IL-28R shRNA (h) Lentiviral Particles: sc-62497-V as alternate gene silencing products.

For independent verification of IL-28R (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-62497A, sc-62497B and sc-62497C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

IL-28R siRNA (h) is recommended for the inhibition of IL-28R 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 μ M in 66 μ 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor IL-28R gene expression knockdown using RT-PCR Primer: IL-28R (h)-PR: sc-62497-PR (20 μ l, 534 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Olanier, D., et al. 2014. Inhibition of dengue and chikungunya virus infections by RIG-I-mediated type I interferon-independent stimulation of the innate antiviral response. *J. Virol.* 88: 4180-4194.
2. Sung, P.S., et al. 2017. IFN- λ 4 potently blocks IFN- α signalling by ISG15 and USP18 in hepatitis C virus infection. *Sci. Rep.* 7: 3821.

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.