

SIGIRR siRNA (h): sc-61547

BACKGROUND

Single Ig IL-1-related receptor SIGIRR, also designated single immunoglobulin domain-containing IL-1R-related protein or Toll/interleukin-1 receptor 8 (TIR8), is a member of the interleukin-1 receptor family. SIGIRR acts as a negative regulator of the IL-1R and Toll-like receptor signaling pathways and reduces the recruitment of certain components to the TLR4 receptor. Subsequently, SIGIRR confers resistance to *P. aeruginosa* corneal infection. SIGIRR can form complexes with IL-1R1, MYD-88, IRAK-1 and TRAF-6 upon IL-1 stimulation and TLR4 after LPS stimulation. It is a single-pass type III membrane protein that is mainly expressed in kidney, lung and gut.

REFERENCES

1. Thomassen, E., et al. 1999. Identification and characterization of SIGIRR, a molecule representing a novel subtype of the IL-1R superfamily. *Cytokine* 11: 389-399.
2. Wald, D., et al. 2003. SIGIRR, a negative regulator of Toll-like receptor-interleukin-1 receptor signaling. *Nat. Immunol.* 4: 920-927.
3. Mantovani, A., et al. 2004. Extracellular and intracellular decoys in the tuning of inflammatory cytokines and Toll-like receptors: the new entry TIR8/SIGIRR. *J. Leukoc. Biol.* 75: 738-742.
4. Polentarutti, N., et al. 2004. Unique pattern of expression and inhibition of IL-1 signaling by the IL-1 receptor family member TIR8/SIGIRR. *Eur. Cytokine Netw.* 14: 211-218.
5. Qin, J., et al. 2005. SIGIRR inhibits interleukin-1 receptor and Toll-like receptor 4-mediated signaling through different mechanisms. *J. Biol. Chem.* 280: 25233-25241.

CHROMOSOMAL LOCATION

Genetic locus: SIGIRR (human) mapping to 11p15.5.

PRODUCT

SIGIRR 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 SIGIRR shRNA Plasmid (h): sc-61547-SH and SIGIRR shRNA (h) Lentiviral Particles: sc-61547-V as alternate gene silencing products.

For independent verification of SIGIRR (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-61547A, sc-61547B and sc-61547C.

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

SIGIRR siRNA (h) is recommended for the inhibition of SIGIRR 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.

GENE EXPRESSION MONITORING

SIGIRR (A-4): sc-271864 is recommended as a control antibody for monitoring of SIGIRR 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 κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 SIGIRR gene expression knockdown using RT-PCR Primer: SIGIRR (h)-PR: sc-61547-PR (20 μ l, 448 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, D., et al. 2015. SIGIRR participates in negative regulation of LPS response and tolerance in human bladder epithelial cells. *BMC Immunol.* 16: 73.
2. Yamaguchi, R., et al. 2017. Differential regulation of IL-23 production in M1 macrophages by TIR8/SIGIRR through TLR4- or TLR7/8-mediated signaling. *Cytokine* 99: 310-315.
3. Yu, W., et al. 2022. SIGIRR mutation in human necrotizing enterocolitis (NEC) disrupts Stat3-dependent microRNA expression in neonatal gut. *Cell. Mol. Gastroenterol. Hepatol.* 13: 425-440.

RESEARCH USE

For research use only, not for use in diagnostic procedures.