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TIRAP siRNA (m): sc-44740

BACKGROUND

Mammalian Toll-like receptors (TLRs) recognize conserved products of microbial metabolism and activate NF κ B and other signaling pathways through the adapter protein MyD88. MyD88 functions as an adapter protein in the association of IL-1 receptor associated kinase (IRAK) with the IL-1 receptor. MyD88 contains a characteristic N-terminal death domain, which is essential for NF κ B activation, and an adjacent Toll/IL-1R homology domain (TIR domain), which is responsible for signal transduction. MAL (MyD88 adapter-like), also designated TIR domain-containing adapter protein (TIRAP), MyD88 or TLR-4 adaptor protein, is a cytoplasmic TIR-domain-containing protein that activates NF κ B, Jun amino-terminal kinase and extracellular signal-regulated kinase-1 and -2. MAL forms homodimers and heterodimers with MyD88. IRAK-2 is required for the activation of NF κ B by MAL, but not IRAK, whereas MyD88 requires both IRAKs. MAL associates with IRAK-2 by its TIR domain. In addition, MAL associates with TLR-4, suggesting that it plays a role in TLR-4 signal transduction.

REFERENCES

1. Medzhitov, R., et al. 1998. MyD88 is an adaptor protein in the hToll/IL-1 receptor family signaling pathways. *Mol. Cell* 2: 253-258.
2. Burns, K., et al. 1998. MyD88, an adaptor protein involved in interleukin-1 signaling. *J. Biol. Chem.* 273: 12203-12209.
3. Chow, J.C., et al. 1999. Toll-like receptor-4 mediates lipopolysaccharide-induced signal transduction. *J. Biol. Chem.* 274: 10689-10692.
4. Means, T.K., et al. 2000. The biology of Toll-like receptors. *Cytokine Growth Factor Rev.* 11: 219-232.
5. Horng, T., et al. 2001. TIRAP: an adapter molecule in the Toll signaling pathway. *Nat. Immunol.* 2: 835-841.
6. Fitzgerald, K.A., et al. 2001. MAL (MyD88-adaptor-like) is required for Toll-like receptor-4 signal transduction. *Nature* 413: 78-83.

CHROMOSOMAL LOCATION

Genetic locus: Tirap (mouse) mapping to 9 A4.

PRODUCT

TIRAP 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TIRAP shRNA Plasmid (m): sc-44740-SH and TIRAP shRNA (m) Lentiviral Particles: sc-44740-V as alternate gene silencing products.

For independent verification of TIRAP (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-44740A, sc-44740B and sc-44740C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20 $^{\circ}$ C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20 $^{\circ}$ 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

TIRAP siRNA (m) is recommended for the inhibition of TIRAP 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 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 TIRAP gene expression knockdown using RT-PCR Primer: TIRAP (m)-PR: sc-44740-PR (20 μ l, 497 bp). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

SELECT PRODUCT CITATIONS

1. Lin, M.H., et al. 2011. A novel exopolysaccharide from the biofilm of *Thermus aquaticus* YT-1 induces the immune response through Toll-like receptor 2. *J. Biol. Chem.* 286: 17736-17745.
2. Lee, H.R., et al. 2019. 1-palmitoyl-2-linoleoyl-3-acetyl-rac-glycerol (PLAG) rapidly resolves LPS-induced acute lung injury through the effective control of neutrophil recruitment. *Front. Immunol.* 10: 2177.

RESEARCH USE

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