SANTA CRUZ BIOTECHNOLOGY, INC.

TNF-R1 siRNA (h): sc-29507

BACKGROUND

Tumor necrosis factor (TNF) is a pleiotropic cytokine whose function is mediated through two distinct cell surface receptors. These receptors, designated TNF-R1 and TNF-R2, are expressed on most cell types. The majority of TNF functions are primarily mediated through TNF-R1, while signaling through TNF-R2 occurs less extensively and is confined to cells of the immune system. Both of these proteins belong to the growing TNF and nerve growth factor (NGF) receptor superfamily, which includes FAS, CD30, CD27 and CD40. The members of this superfamily are type I membrane proteins that share sequence homology confined to the extracellular region. TNF-R1 shares a motif termed the "death domain" with FAS and three structurally unrelated signaling proteins, TRADD, FADD and RIP. This death domain is required for transduction of the apoptotic signal.

CHROMOSOMAL LOCATION

Genetic locus: TNFRSF1A (human) mapping to 12p13.31.

PRODUCT

TNF-R1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TNF-R1 shRNA Plasmid (h): sc-29507-SH and TNF-R1 shRNA (h) Lentiviral Particles: sc-29507-V as alternate gene silencing products.

For independent verification of TNF-R1 (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-29507A, sc-29507B and sc-29507C.

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

TNF-R1 siRNA (h) is recommended for the inhibition of TNF-R1 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 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.

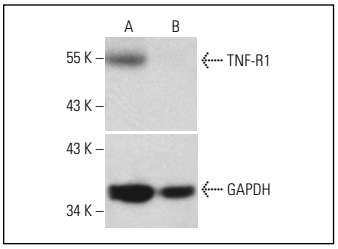
GENE EXPRESSION MONITORING

TNF-R1 (H-5): sc-8436 is recommended as a control antibody for monitoring of TNF-R1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TNF-R1 gene expression knockdown using RT-PCR Primer: TNF-R1 (h)-PR: sc-29507-PR (20 µl, 473 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



TNF-R1 siRNA (h): sc-29507. Western blot analysis of TNF-R1 expression in non-transfected control (**A**) and TNF-R1 siRNA transfected (**B**) HeLa cells. Blot probed with TNF-R1 (H-5): sc-8436. GAPDH (FL-335): sc-25778 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Suna, S., et al. 2009. Lymphotoxin-α3 mediates monocyte-endothelial interaction by TNFR I/NFκB signaling. Biochem. Biophys. Res. Commun. 379: 374-378.
2. Yun, H.M., et al. 2015. IL-32α suppresses colorectal cancer development via TNFR1-mediated death signaling. Oncotarget 6: 9061-9072.
3. Huang, C.H., et al. 2016. The association between p38 MAPK-mediated TNF-α/TNFR2 up-regulation and 2-(4-aminophenyl)-7-methoxybenzothiazole-induced apoptosis in human leukemia U937 cells. J. Cell. Physiol. 231: 130-141.
4. Zhang, H. and Xiao, W. 2017. TNFR1 and TNFR2 differentially mediate TNF-α-induced inflammatory responses in rheumatoid arthritis fibroblast-like synoviocytes. Cell Biol. Int. 41: 415-422.
5. Deng, X., et al. 2019. MicroRNA-29a-3p reduces TNFα-induced endothelial dysfunction by targeting tumor necrosis factor receptor 1. Mol. Ther. Nucleic Acids 18: 903-915.
6. Gong, K., et al. 2020. EGFR inhibition triggers an adaptive response by co-opting antiviral signaling pathways in lung cancer. Nat. Cancer 1: 394-409.

RESEARCH USE

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