



NALP1 siRNA (r): sc-270039

BACKGROUND

NACHT-, LRR- and PYD-containing protein 1 (NALP1), also designated caspase recruitment domain protein 7, is a cytoplasmic protein. NALP1 contains a putative nucleotide binding site, a region of leucine-rich repeats, and death domain folds at both termini, providing protein/protein association functions such as caspase recruitment. NALP1 is involved in the innate immune response and is a component of the inflammasome. It forms cytoplasmic structures called death effector filaments and enhances APAF1 and cytochrome c-dependent activation of pro-caspase-9 and consecutive apoptosis. NALP1 is widely expressed in thymus, heart, spleen and peripheral blood leukocytes.

REFERENCES

- Hiller, S., et al. 2003. NMR structure of the apoptosis- and inflammation-related NALP1 Pyrin domain. *Structure* 11: 1199-1205.
- Chamaillard, M., et al. 2003. Nods, NALPs and NAIP: intracellular regulators of bacterial-induced inflammation. *Cell. Microbiol.* 5: 581-592.
- Tschopp, J., et al. 2003. NALPs: a novel protein family involved in inflammation. *Nat. Rev. Mol. Cell Biol.* 4: 95-104.
- Damiano, J.S., et al. 2004. Heterotypic interactions among NACHT domains: implications for regulation of innate immune responses. *Biochem. J.* 381: 213-219.
- Sanz, C., et al. 2004. NALP1 is a transcriptional target for cAMP-response-element-binding protein (CREB) in myeloid leukaemia cells. *Biochem. J.* 384: 281-286.
- Liu, F., et al. 2004. Expression of NALP1 in cerebellar granule neurons stimulates apoptosis. *Cell. Signal.* 16: 1013-1021.

CHROMOSOMAL LOCATION

Genetic locus: Nlrp1 (rat) mapping to 10q24.

PRODUCT

NALP1 siRNA (r) 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 NALP1 shRNA Plasmid (r): sc-270039-SH and NALP1 shRNA (r) Lentiviral Particles: sc-270039-V as alternate gene silencing products.

For independent verification of NALP1 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270039A, sc-270039B and sc-270039C.

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

NALP1 siRNA (r) is recommended for the inhibition of NALP1 expression in rat 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

NALP1 (B-2): sc-166368 is recommended as a control antibody for monitoring of NALP1 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 NALP1a gene expression knockdown using RT-PCR Primer: NALP1 (r)-PR: sc-270039-PR (20 μ l, 598 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Tan, M.S., et al. 2014. Amyloid- β induces NLRP1-dependent neuronal pyroptosis in models of Alzheimer's disease. *Cell Death Dis.* 5: e1382.
- Tan, C.C., et al. 2015. NLRP1 inflammasome is activated in patients with medial temporal lobe epilepsy and contributes to neuronal pyroptosis in amygdala kindling-induced rat model. *J. Neuroinflammation* 12: 18.
- Sun, H., et al. 2022. The role and mechanism of NDST1/NULP1 regulating right ventricular hypertrophy in hypoxic pulmonary hypertension. *Gen. Physiol. Biophys.* 41: 407-416.

RESEARCH USE

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