SANTA CRUZ BIOTECHNOLOGY, INC.

NALP1 siRNA (m): sc-63287

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The Power to Question

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

1. Hiller, S., Kohl, A., Fiorito, F., Herrmann, T., Wider, G., Tschopp, J., Grutter, M.G. and Wuthrich, K. 2003. NMR structure of the apoptosis- and inflammation-related NALP1 Pyrin domain. Structure 11: 1199-1205.
2. Chamaillard, M., Girardin, S.E., Viala, J. and Philpott, D.J. 2003. Nods, NALPs and NAIP: intracellular regulators of bacterial-induced inflammation. Cell. Microbiol. 5: 581-592.
3. Tschopp, J., Martinon, F. and Burns, K. 2003. NALPs: a novel protein family involved in inflammation. Nat. Rev. Mol. Cell Biol. 4: 95-104.
4. Damiano, J.S., Oliveira, V., Welsh, K. and Reed, J.C. 2004. Heterotypic interactions among NACHT domains: implications for regulation of innate immune responses. Biochem. J. 381: 213-219.
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6. Liu, F., Lo, C.F., Ning, X., Kajkowski, E.M., Jin, M., Chiriac, C., Gonzales, C., Naureckiene, S., Lock, Y.W., Pong, K., Zaleska, M.M., Jacobsen, J.S., Silverman, S. and Ozenberger, B.A. 2004. Expression of NALP1 in cerebellar granule neurons stimulates apoptosis. Cell. Signal. 16: 1013-1021.

CHROMOSOMAL LOCATION

Genetic locus: Nlrp1a/Nlrp1b (mouse) mapping to 11 B4.

PRODUCT

NALP1 siRNA (m) is a pool of 2 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 NALP1 shRNA Plasmid (m): sc-63287-SH and NALP1 shRNA (m) Lentiviral Particles: sc-63287-V as alternate gene silencing products.

For independent verification of NALP1 (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-63287A and sc-63287B.

PROTOCOLS

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

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

NALP1 siRNA (m) is recommended for the inhibition of NALP1 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 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

NALP1 (F-1): sc-390133 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

SELECT PRODUCT CITATIONS

1. Liu, S., Li, Q., Zhang, M.T., Mao-Ying, Q.L., Hu, L.Y., Wu, G.C., Mi, W.L. and Wang, Y.Q. 2016. Curcumin ameliorates neuropathic pain by down-regulating spinal IL-1β via suppressing astroglial NALP1 inflammasome and JAK2-Stat3 signalling. Sci. Rep. 6: 28956.
2. Lin, T., Hu, L., Hu, F., Li, K., Wang, C.Y., Zong, L.J., Zhao, Y.Q., Zhang, X., Li, Y., Yang, Y., Wang, Y., Jiang, C.Y., Wu, X. and Liu, W.T. 2022. NET-triggered NLRP3 activation and IL-18 release drive oxaliplatin-induced peripheral neuropathy. Cancer Immunol. Res. E-published.

RESEARCH USE

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