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SANTA CRUZ BIOTECHNOLOGY, INC.

NAIP5 siRNA (m): sc-149807

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

BACKGROUND

NAIP5 (nucleotide-binding and oligomerization domain (NOD)-like receptor (NLR) family apoptosis inhibitory protein 5; Lgn1; Birc1e; Naip-rs3) is an ATP-binding intracellular immune receptor that detects the presence of pathogen signals-including bacterial flagellin-and bacterial type III secretion system (TTSS) rod components. NAIP5 mRNA are abundant in adult small and large intestine, with ancillary function in central nervous system, genitourinary, heart, liver and retina. Dormant NAIP5 protein binds with a high affinity to infection-derived intracellular pathogenic flagellin protein (bacterial components; *Legionella pneumophila),* activates, and mediates innate resistance responses via NLRC4 inflammasome (cytoplasmic protein complex) assembly-dependent pathways. NAIP5/NLRC4 (NLRC4 phosphorylation Ser-533) inflammasome assembly initiates interleukin-1β (IL-1β) production, pyroptosis (caspase-1 (CASP1) dependent inflammatory apoptosis), and recognition response signaling toward the invading bacterium (i.e.: *Legionella pneumophila). L pneumophila* is an aerobic, pleomorphic, flagellated, gram-negative bacterium that triggers pneumonia (i.e.: Legionnaire's disease) in humans if the invading bacteria can grow/replicate within compartments within host macrophages. Polymorphisms within the NAIP5 gene significantly influences the capability of intracellular (host infected) *Legionella* replication within heterogeneic macrophage cell sub populations.

REFERENCES

1. Wright, E.K., et al. 2003. Naip5 affects host susceptibility to the intracellular pathogen *Legionella pneumophila.* Curr. Biol. 13: 27-36.
2. Lightfield, K.L., et al. 2008. Critical function for Naip5 in inflammasome activation by a conserved carboxy-terminal domain of flagellin. Nat. Immunol. 9: 1171-1178.
3. Zhao, Y., et al. 2011. The NLRC4 inflammasome receptors for bacterial flagellin and type III secretion apparatus. Nature 477: 596-600.
4. Matusiak, M., 2015. Flagellin-induced NLRC4 phosphorylation primes the inflammasome for activation by NAIP5. Proc. Natl. Acad. Sci. USA 112: 1541-1546.
5. Tenthorey, J.L., et al. 2017. The structural basis of flagellin detection by NAIP5: a strategy to limit pathogen immune evasion. Science 358: 888-893.
6. Yang, X., et al. 2018. Structural basis for specific flagellin recognition by the NLR protein NAIP5. Cell Res. 28: 35-47.
7. Gonçalves, A.V., et al. 2019. Gasdermin-D and caspase-7 are the key caspase-1/8 substrates downstream of the NAIP5/NLRC4 inflammasome required for restriction of *Legionella pneumophila.* PLoS Pathog. 15: e1007886.

CHROMOSOMAL LOCATION

Genetic locus: Naip5 (mouse) mapping to 13 D1.

PROTOCOLS

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

PRODUCT

NAIP5 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NAIP5 shRNA Plasmid (m): sc-149807-SH and NAIP5 shRNA (m) Lentiviral Particles: sc-149807-V as alternate gene silencing products.

For independent verification of NAIP5 (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-149807A, sc-149807B and sc-149807C.

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

NAIP5 siRNA (m) is recommended for the inhibition of NAIP5 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NAIP5 gene expression knockdown using RT-PCR Primer: NAIP5 (m)-PR: sc-149807-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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