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SANTA CRUZ BIOTECHNOLOGY, INC.

NKp30 siRNA (h): sc-42950

BACKGROUND

The immune response is the way the body recognizes and defends itself against microorganisms, viruses and substances recognized as foreign and potentially harmful to the body. Innate immunity is the barrier that keeps foreign materials from entering the body and represents the first line of defense in the immune response. During the innate response to many inflammatory and infectious stimuli, dendritic cells (DCs) undergo a differentiation process termed maturation. Mature DCs activate antigen-specific naive T cells and resting human natural killer (NK) cells. NK cell receptors NKp30, NKp44 and NKp46, appear to play prominent roles in NK cell activation. The human NKp30 gene maps to chromosome 6p21.33 and encodes a 190 amino acid protein. The NKp30 protein contains a signal peptide followed by a 120 amino acid extracellular region that forms a V-type Ig-like domain with two potential N-linked glycosylation sites, a hydrophobic transmembrane region with a positively charged Arginine residue and a 33 amino acid cytoplasmic tail lacking an immunoreceptor tyrosine-based activating motif (ITAM). NKp30 cooperates with NKp46 and/or NKp44 in the induction of NK-mediated cytotoxicity against the majority of target cells, where it represents the major triggering receptor in the killing of certain tumors.

REFERENCES

1. Pende, D., et al. 1999. Identification and molecular characterization of NKp30, a novel triggering receptor involved in natural cytotoxicity mediated by human natural killer cells. J. Exp. Med. 190: 1505-1516.
2. Sato, M., et al. 2001. Identification of novel single nucleotide substitutions in the NKp30 gene expressed in human natural killer cells. Tissue Antigens 58: 255-258.

CHROMOSOMAL LOCATION

Genetic locus: NCR3 (human) mapping to 6p21.33.

PRODUCT

NKp30 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 NKp30 shRNA Plasmid (h): sc-42950-SH and NKp30 shRNA (h) Lentiviral Particles: sc-42950-V as alternate gene silencing products.

For independent verification of NKp30 (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-42950A, sc-42950B and sc-42950C.

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

NKp30 siRNA (h) is recommended for the inhibition of NKp30 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

NKp30 (CLH9): sc-33647 is recommended as a control antibody for monitoring of NKp30 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NKp30 gene expression knockdown using RT-PCR Primer: NKp30 (h)-PR: sc-42950-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lai, H.C., et al. 2012. Activation of NK cell cytotoxicity by the natural compound 2,3-butanediol. J. Leukoc. Biol. 92: 807-814.
2. Lu, C.C., et al. 2014. NK cells kill mycobacteria directly by releasing perforin and granulysin. J. Leukoc. Biol. 96: 1119-1129.
3. Chang, C.J., et al. 2014. *Ganoderma lucidum* stimulates NK cell cytotoxicity by inducing NKG2D/NCR activation and secretion of perforin and granulysin. Innate Immun. 20: 301-311.
4. Lu, C.C., et al. 2016. Immunomodulatory properties of medicinal mushrooms: differential effects of water and ethanol extracts on NK cell-mediated cytotoxicity. Innate Immun. 22: 522-533.

RESEARCH USE

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