SANTA CRUZ BIOTECHNOLOGY, INC.

IL-32 siRNA (h): sc-60841

BACKGROUND

The interleukins make up a large family of well characterized cytokines, primarily of hematopoietic cell origin. The interleukins are secreted by immune cells (mainly macrophages, B cells and T cells) that regulate a wide range of immune system functions. Interleukin-32 (IL-32), also designated Natural Killer (NK) cell transcript 4 (nk4), may play a role in inflammatory responses such as lymphocyte activation. IL-32 is secreted following stimulation with inflammatory cytokines such as IL-1β and IFN-γ, and by NK cells after exposure to IL-12 and IL-18. It also induces production of IL-1β, TNFα, MIP-2 and IL-6. Expression of IL-32 increases after activation of T cells by mitogens or activation of NK cells by IL-2. The IL-32 protein contains three potential N-myristoylation sites, a tyrosine sulfation site, an RGD cell-attachment sequence and multiple putative phosphorylation sites. Human IL-32 exists as four isoforms.

REFERENCES

1. Dahl, C.A., et al. 1992. Identification of a novel gene expressed in activated na and T cells. J. Immunol. 148: 597-603.
2. Kim, S.H., et al. 2005. Interleukin-32: a cytokine and inducer of TNFα. Immunity 22: 131-142.
3. Netea, M.G., et al. 2005. IL-32 synergizes with nucleotide oligomerization domain (NOD) 1 and NOD2 ligands for IL-1β and IL-6 production through a caspase 1-dependent mechanism. Proc. Natl. Acad. Sci. USA 102: 16309-16314.
4. Novick, D., et al. 2006. Proteinase 3 is an IL-32 binding protein. Proc. Natl. Acad. Sci. USA 103: 3316-3321.

CHROMOSOMAL LOCATION

Genetic locus: IL32 (human) mapping to 16p13.3.

PRODUCT

IL-32 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 IL-32 shRNA Plasmid (h): sc-60841-SH and IL-32 shRNA (h) Lentiviral Particles: sc-60841-V as alternate gene silencing products.

For independent verification of IL-32 (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-60841A, sc-60841B and sc-60841C.

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

IL-32 siRNA (h) is recommended for the inhibition of IL-32 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

IL-32 (AT2F9): sc-517408 is recommended as a control antibody for monitoring of IL-32 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 IL-32 gene expression knockdown using RT-PCR Primer: IL-32 (h)-PR: sc-60841-PR (20 µl, 438 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Rong, Y., et al. 2015. IL-32 was involved in cigarette smoke-induced pulmonary inflammation in COPD. Clin. Respir. J. 9: 430-435.
2. Lee, Y.S., et al. 2019. IL-32γ suppresses lung cancer stem cell growth via inhibition of ITGAV-mediated STAT5 pathway. Cell Death Dis. 10: 506.
3. Zhang, J., et al. 2021. IL-32 exacerbates adenoid hypertrophy via activating NLRP3-mediated cell pyroptosis, which promotes inflammation. Mol. Med. Rep. 23: 226.

RESEARCH USE

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

PROTOCOLS

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