SANTA CRUZ BIOTECHNOLOGY, INC.

NFAT5 siRNA (h): sc-43968



BACKGROUND

Members of the NFAT (nuclear factor of activated T cells) family of transcription factors are related to NFkB/Rel proteins and form cooperative complexes with the AP-1 proteins, Fos and Jun, on DNA to regulate cytokine expression in T cells. NFAT proteins are widely expressed and alternatively modified to generate splice variants, and they are localized to both the cytosol (NFATc) and to the nucleus (NFATn). NFAT1, NFAT2, and NFAT4 are predominantly expressed in immune cells, and NFAT2 and NFAT3 are expressed at high levels in cardiac tissues. In addition to activating cytokine gene transcription, NFAT2 is also implicated in cardiac valve development, and NFAT3 is involved in cardiac hypertrophy. NFAT5 is detected in both immune and nonimmune cells and, like other NFAT proteins, contains a highly conserved Rel-like binding domain that mediates NFAT proteins associating with specific consensus sequences on DNA. NFAT proteins are activated by increases in intracellular calcium, which leads to the calmodulin-dependent phosphatase, calcineurin, dephosphorylating NFAT proteins. This activating event induces a conformational change in the protein structure that exposes the nuclear localization signal and facilitates the translocation of NFAT proteins from the cytosol into the nucleus.

CHROMOSOMAL LOCATION

Genetic locus: NFAT5 (human) mapping to 16q22.1.

PRODUCT

NFAT5 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NFAT5 shRNA Plasmid (h): sc-43968-SH and NFAT5 shRNA (h) Lentiviral Particles: sc-43968-V as alternate gene silencing products.

For independent verification of NFAT5 (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-43968A, sc-43968B and sc-43968C.

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

NFAT5 siRNA (h) is recommended for the inhibition of NFAT5 expression in human cells.

PROTOCOLS

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

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

NFAT5 (F-9): sc-398171 is recommended as a control antibody for monitoring of NFAT5 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NFAT5 gene expression knockdown using RT-PCR Primer: NFAT5 (h)-PR: sc-43968-PR (20 μ l, 506 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- 1. Yoon, H.J., et al. 2011. NF-AT5 is a critical regulator of inflammatory arthritis. Arthritis Rheum. 63: 1843-1852.
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- Guo, J.Y., et al. 2017. Melatonin inhibits Sirt1-dependent NAMPT and NFAT5 signaling in chondrocytes to attenuate osteoarthritis. Oncotarget 8: 55967-55983.
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- Kleiner, J., et al. 2018. Activator protein-1 contributes to the NaCl-induced expression of VEGF and PIGF in RPE cells. Mol. Vis. 24: 647-666.
- Lin, X.C., et al. 2019. NFAT5 promotes arteriogenesis via MCP-1-dependent monocyte recruitment. J. Cell. Mol. Med. 24: 2052-2063.
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RESEARCH USE

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