SANTA CRUZ BIOTECHNOLOGY, INC.

Nur77 siRNA (h): sc-36109

BACKGROUND

Nurr1 (Nur-related factor 1) and Nur77 (also designated NGFI-B) encode orphan nuclear receptors which may comprise an additional subfamily within the nuclear receptor superfamily. The rat and human homologs of mouse Nurr1 are designated RNR1 and NOT, respectively. Both Nurr1 and Nur77 are growth factor inducible immediate early response genes. Induction of both Nurr1 and Nur77 is seen after membrane depolarization while only Nur77 induction is seen with NGF stimulation. JunD acts as a mediator for Nur77. An increase in Nur77 expression is seen in activated T cells during G_0 to G_1 transition and throughout the G_1 phase. In addition to its function as an immediate early gene, Nur77 may play a role in TCR-mediated apoptosis. Cyclosporin A, a potent immunosuppressant, has been shown to inhibit the ability of Nur77 to bind DNA. A dominant negative form of Nur77 can protect T cell hybridomas from activation-induced apoptosis. However, the absolute requirement of Nur77 for TCR-mediated apoptosis is still under debate.

CHROMOSOMAL LOCATION

Genetic locus: NR4A1 (human) mapping to 12q13.13.

PRODUCT

Nur77 siRNA (h) is a target-specific 19-25 nt siRNA 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 Nur77 shRNA Plasmid (h): sc-36109-SH and Nur77 shRNA (h) Lentiviral Particles: sc-36109-V as alternate gene silencing 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

Nur77 siRNA (h) is recommended for the inhibition of Nur77 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

Nur77 (C-5): sc-365113 is recommended as a control antibody for monitoring of Nur77 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 Nur77 gene expression knockdown using RT-PCR Primer: Nur77 (h)-PR: sc-36109-PR (20 µl, 542 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chang, L.F., et al. 2011. Overexpression of the orphan receptor Nur77 and its translocation induced by PCH4 may inhibit malignant glioma cell growth and induce cell apoptosis. J. Surg. Oncol. 103: 442-450.
2. Mount, M.P., et al. 2013. Perturbation of transcription factor Nur77 expression mediated by myocyte enhancer factor 2D (MEF2D) regulates dopaminergic neuron loss in response to 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP). J. Biol. Chem. 288: 14362-14371.
3. Lee, S.O., et al. 2014. The orphan nuclear receptor NR4A1 (Nur77) regulates oxidative and endoplasmic reticulum stress in pancreatic cancer cells. Mol. Cancer Res. 12: 527-538.
4. Malhotra, S.S. and Gupta, S.K. 2017. Relevance of the NR4A sub-family of nuclear orphan receptors in trophoblastic BeWo cell differentiation. Cell. Mol. Biol. Lett. 22: 15.
5. Sanchez, M., et al. 2018. Oxidized analogs of Di(1H-indol-3-yl)methyl-4-substituted benzenes are NR4A1-dependent UPR inducers with potent and safe anti-cancer activity. Oncotarget 9: 25057-25074.
6. Yan, J., et al. 2020. Nur77 attenuates inflammatory responses and oxidative stress by inhibiting phosphorylated IκB-α in Parkinson's disease cell model. Aging 12: 8107-8119.
7. Ping, F., et al. 2021. Cx32 inhibits the autophagic effect of Nur77 in SH-SY5Y cells and rat brain with ischemic stroke. Aging 13: 22188-22207.
8. Patiño-Martínez, E., et al. 2022. The Nurr7 agonist cytosporone B differentially regulates inflammatory responses in human polarized macrophages. Immunobiology 227: 152299.

RESEARCH USE

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