SANTA CRUZ BIOTECHNOLOGY, INC.

NIRF siRNA (h): sc-72380

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The Power to Question

BACKGROUND

NIRF (Np95/ICBP90-like RING finger protein), also known as E3 ubiquitin-protein ligase UHRF2, nuclear zinc finger protein Np97 or RING finger protein 107, is a nuclear protein involved in cell cycle regulation. NIRF contains a PHD finger, two RING fingers, a ubiquitin-like domain and a YDG/SRA domain. It shares high structural homology with UHRF1 (also called ICBP90 in humans and Np95 in mice), however, in contrast to UHRF1, NIRF acts as a negative regulator of cell proliferation. It associates with the Cdk2-cyclin complex in its dephosphorylated form and induces G_1 arrest. NIRF plays an important role in the regulation of the G_1/S transition by blocking cell entry into the S phase. While associated with Cdk2, NIRF becomes phosphorylated. NIRF can also act as a ubiquitin ligase and it ubiquitinates PCNP. In addition, NIRF can recruit and bind HDAC1 via its SRA domain. The overexpression of NIRF results in an increase of G_1 phase cells.

REFERENCES

1. Mori, T., et al. 2002. NIRF, a novel RING finger protein, is involved in cell-cycle regulation. Biochem. Biophys. Res. Commun. 296: 530-536.
2. Li, Y., et al. 2004. NIRF induces G_1 arrest and associates with Cdk2. Biochem. Biophys. Res. Commun. 319: 464-468.
3. Mori, T., et al. 2004. NIRF is a ubiquitin ligase that is capable of ubiquitinating PCNP, a PEST-containing nuclear protein. FEBS Lett. 557: 209-214.
4. Unoki, M., et al. 2004. ICBP90, an E2F-1 target, recruits HDAC1 and binds to methyl-CpG through its SRA domain. Oncogene 23: 7601-7610.
5. Abbady, A.Q., et al. 2005. TCR pathway involves ICBP90 gene down-regulation via E2F binding sites. Biochem. Pharmacol. 70: 570-579.
6. Muto, M., et al. 2006. Isolation and characterization of a novel human radiosusceptibility gene, NP95. Radiat. Res. 166: 723-733.
7. Woo, H.R., et al. 2007. VIM1, a methylcytosine-binding protein required for centromeric heterochromatinization. Genes Dev. 21: 267-277.
8. Bronner, C., et al. 2007. The UHRF family: oncogenes that are drugable targets for cancer therapy in the near future? Pharmacol. Ther. 115: 419-434.

CHROMOSOMAL LOCATION

Genetic locus: UHRF2 (human) mapping to 9p24.1.

PRODUCT

NIRF 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 NIRF shRNA Plasmid (h): sc-72380-SH and NIRF shRNA (h) Lentiviral Particles: sc-72380-V as alternate gene silencing products.

For independent verification of NIRF (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-72380A, sc-72380B and sc-72380C.

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

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

NIRF (C-10): sc-398953 is recommended as a control antibody for monitoring of NIRF 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 NIRF gene expression knockdown using RT-PCR Primer: NIRF (h)-PR: sc-72380-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.

PROTOCOLS

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