SANTA CRUZ BIOTECHNOLOGY, INC.

NRK siRNA (h): sc-91159

BACKGROUND

NRK (Nik related kinase), also known as NESK (NIK-like embryo-specific kinase), is a 1,582 amino acid protein belonging to the protein kinase superfamily and the GCK (germinal center kinase) subfamily of protein kinases. Several GCK proteins are involved in activating the JNK pathway, which plays a crucial role in cellular responses stimulated by stress-inducing agents and proinflammatory cytokines. Members of the GCK family are proteolytically cleaved and activated during apoptosis. Predominantly expressed in skeletal muscle during the late stages of embryogenesis, it is suggested that NRK may be involved in the regulation of Actin cytoskeletal organization in skeletal muscle cells through Cofilin phosphorylation. Containing a CNH domain and a protein kinase domain, NRK is considered a novel activator of the TNFα-induced signaling pathway. Three isoforms of NRK are produced as a result of alternative splicing events.

REFERENCES

1. Yahara, I., et al. 1996. A role of Cofilin/destrin in reorganization of Actin cytoskeleton in response to stresses and cell stimuli. Cell Struct. Funct. 21: 421-424.
2. Kanai-Azuma, M., et al. 1999. Nrk: a murine X-linked NIK (Nck-interacting kinase)-related kinase gene expressed in skeletal muscle. Mech. Dev. 89: 155-159.
3. Nakano, K., et al. 2000. NESK, a member of the germinal center kinase family that activates the c-Jun N-terminal kinase pathway and is expressed during the late stages of embryogenesis. J. Biol. Chem. 275: 20533-20539.
4. Nakano, K., et al. 2003. Cofilin phosphorylation and Actin polymerization by NRK/NESK, a member of the germinal center kinase family. Exp. Cell Res. 287: 219-227.
5. Qu, K., et al. 2004. Computational and experimental studies on human misshapen/NIK-related kinase MINK-1. Curr. Med. Chem. 11: 569-582.
6. Kakinuma, H., et al. 2005. Enhanced JNK activation by NESK without kinase activity upon caspase-mediated cleavage during apoptosis. Cell. Signal. 17: 1439-1448.

CHROMOSOMAL LOCATION

Genetic locus: NRK (human) mapping to Xq22.3.

PRODUCT

NRK 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 NRK shRNA Plasmid (h): sc-91159-SH and NRK shRNA (h) Lentiviral Particles: sc-91159-V as alternate gene silencing products.

For independent verification of NRK (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-91159A, sc-91159B and sc-91159C.

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

NRK siRNA (h) is recommended for the inhibition of NRK 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NRK gene expression knockdown using RT-PCR Primer: NRK (h)-PR: sc-91159-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.