

NOP14 siRNA (h): sc-89219

BACKGROUND

NOP14 (nucleolar protein 14), also known as NOL14, is a 857 amino acid nuclear protein that belongs to the NOP14 family. Existing as two alternatively spliced isoforms, NOP14 is a component of the ribosomal small subunit (SSU) processome. While it is involved in nucleolar processing of pre-18S ribosomal RNA, NOP14 also plays a role in the nuclear export of the 40S pre-ribosomal subunit to the cytoplasm. The gene that encodes NOP14 consists of about 25,459 bases and maps to human chromosome 4p16.3. Chromosome 4 represents approximately 6% of the human genome and contains nearly 900 genes. Notably, the Huntingtin gene, which is found to encode an expanded glutamine tract in cases of Huntington's disease, is encoded by a gene that maps to chromosome 4. FGFR-3 is also encoded by a gene located on chromosome 4 and has been associated with thanatophoric dwarfism, achondroplasia, Muenke syndrome and bladder cancer. Chromosome 4 is also tied to Ellis-van Creveld syndrome, methylmalonic acidemia and polycystic kidney disease.

REFERENCES

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2. Kalchman, M.A., et al. 1996. Huntingtin is ubiquitinated and interacts with a specific ubiquitin-conjugating enzyme. *J. Biol. Chem.* 271: 19385-19394.
3. Howard, T.D., et al. 1997. Autosomal dominant postaxial polydactyly, nail dystrophy, and dental abnormalities map to chromosome 4p16, in the region containing the Ellis-van Creveld syndrome locus. *Am. J. Hum. Genet.* 61: 1405-1412.
4. Singhrao, S.K., et al. 1998. Huntingtin protein colocalizes with lesions of neurodegenerative diseases: an investigation in Huntington's, Alzheimer's, and Pick's diseases. *Exp. Neurol.* 150: 213-222.
5. Krakow, D., et al. 2000. Exclusion of the Ellis-van Creveld region on chromosome 4p16 in some families with asphyxiating thoracic dystrophy and short-rib polydactyly syndromes. *Eur. J. Hum. Genet.* 8: 645-648.
6. Liu, P.C. and Thiele, D.J. 2001. Novel stress-responsive genes EMG1 and NOP14 encode conserved, interacting proteins required for 40S ribosome biogenesis. *Mol. Biol. Cell* 12: 3644-3657.

CHROMOSOMAL LOCATION

Genetic locus: NOP14 (human) mapping to 4p16.3.

PRODUCT

NOP14 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 NOP14 shRNA Plasmid (h): sc-89219-SH and NOP14 shRNA (h) Lentiviral Particles: sc-89219-V as alternate gene silencing products.

For independent verification of NOP14 (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-89219A, sc-89219B and sc-89219C.

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

NOP14 siRNA (h) is recommended for the inhibition of NOP14 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 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

Nop14 (B-5): sc-398763 is recommended as a control antibody for monitoring of NOP14 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 NOP14 gene expression knockdown using RT-PCR Primer: NOP14 (h)-PR: sc-89219-PR (20 μ l). 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.