

EXOSC4 siRNA (h): sc-77781

BACKGROUND

The exosome is a multisubunit complex composed of several highly conserved subunits, some of which are 3' to 5' exoribonucleases. The complex is involved in a variety of cellular processes and is responsible for degrading unstable mRNAs that contain AU-rich (ARE) elements in their untranslated 3' region. EXOSC4 (exosome component 4), also known as SKI6, RRP41 or p12A, is a 245 amino acid protein that localizes to both the nucleus and the cytoplasm and shares 96% sequence identity with its mouse counterpart. Functioning as a component of the exosome complex, EXOSC4 exhibits 3'-5' exonuclease activity and is required for the 3'-processing of 7S pre-rRNA to mature 5.8S rRNA. The gene encoding EXOSC4 maps to human chromosome 8, which consists of nearly 146 million base pairs, houses more than 800 genes and is associated with a variety of diseases and malignancies.

REFERENCES

1. Allmang, C., et al. 1999. The yeast exosome and human PM-Scl are related complexes of 3'→5' exonucleases. *Genes Dev.* 13: 2148-2158.
2. Chen, C.Y., et al. 2001. AU binding proteins recruit the exosome to degrade ARE-containing mRNAs. *Cell* 107: 451-464.
3. Brouwer, R., et al. 2001. Three novel components of the human exosome. *J. Biol. Chem.* 276: 6177-6184.
4. Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606491. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Lejeune, F., et al. 2003. Nonsense-mediated mRNA decay in mammalian cells involves decapping, deadenylation, and exonucleolytic activities. *Mol. Cell* 12: 675-687.

CHROMOSOMAL LOCATION

Genetic locus: EXOSC4 (human) mapping to 8q24.3.

PRODUCT

EXOSC4 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see EXOSC4 shRNA Plasmid (h): sc-77781-SH and EXOSC4 shRNA (h) Lentiviral Particles: sc-77781-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 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

EXOSC4 siRNA (h) is recommended for the inhibition of EXOSC4 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

EXOSC4 (G-9): sc-166772 is recommended as a control antibody for monitoring of EXOSC4 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 EXOSC4 gene expression knockdown using RT-PCR Primer: EXOSC4 (h)-PR: sc-77781-PR (20 μ l, 586 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Balaratnam, S., et al. 2022. Decay of piwi-interacting RNAs in human cells is primarily mediated by 5' to 3' exoribonucleases. *ACS Chem. Biol.* 17: 1723-1732.

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.