

PUS7 siRNA (h): sc-89801

BACKGROUND

PUS7 (pseudouridylate synthase 7 homolog (*S. cerevisiae*)) is a 661 amino acid protein that belongs to the pseudouridine synthase truD family. The multisubstrate synthase PUS7 catalyzes the formation of the pseudouridines in 5S rRNA at a site that conforms to the 7-nucleotide consensus sequence present in other substrates of PUS7. It has been suggested that the formation of pseudouridines in 5S rRNA is catalyzed by PUS7, which also forms pseudouridines in U2 snRNA and tRNAs. The PUS7 gene is conserved in chimpanzee, canine, bovine, mouse, rat, chicken, zebrafish, fruit fly, mosquito, *S. pombe*, *S. cerevisiae*, *K. lactis*, *E. gossypii*, *A. thaliana* and rice, and maps to human chromosome 7q22.2. Human chromosome 7 houses over 1,000 genes and comprises nearly 5% of the human genome.

REFERENCES

1. Tsiouras, P., Myers, J.C., Ramirez, F. and Prockop, D.J. 1983. Restriction fragment length polymorphism associated with the pro α 2(I) gene of human type I procollagen. Application to a family with an autosomal dominant form of Osteogenesis imperfecta. *J. Clin. Invest.* 72: 1262-1267.
2. Hillier, L.W., Fulton, R.S., Fulton, L.A., Graves, T.A., Pepin, K.H., Wagner-McPherson, C., Layman, D., Maas, J., Jaeger, S., Walker, R., Wylie, K., Sekhon, M., Becker, M.C., et al. 2003. The DNA sequence of human chromosome 7. *Nature* 424: 157-164.
3. Ma, X., Zhao, X. and Yu, Y.T. 2003. Pseudouridylation (ψ) of U2 snRNA in *S. cerevisiae* is catalyzed by an RNA-independent mechanism. *EMBO J.* 22: 1889-1897.
4. Hillier, L.W., Fulton, R.S., Fulton, L.A., Graves, T.A., Pepin, K.H., Wagner-McPherson, C., Layman, D., Maas, J., Jaeger, S., Walker, R., Wylie, K., Sekhon, M., Becker, M.C., O'Laughlin, M.D., Schaller, M.E., et al. 2003. The DNA sequence of human chromosome 7. *Nature* 424: 157-164.
5. Behm-Ansmant, I., Urban, A., Ma, X., Yu, Y.T., Motorin, Y. and Branlant, C. 2003. The *Saccharomyces cerevisiae* U2 snRNA:pseudouridine-synthase Pus7p is a novel multisite-multisubstrate RNA: ψ -synthase also acting on tRNAs. *RNA* 9: 1371-1382.
6. Reiner, O., Sapoznik, S. and Sapir, T. 2006. Lissencephaly 1 linking to multiple diseases: mental retardation, neurodegeneration, schizophrenia, male sterility, and more. *Neuromolecular Med.* 8: 547-565.
7. Shimamura, A. 2006. Shwachman-Diamond syndrome. *Semin. Hematol.* 43: 178-188.
8. Brezinová, J., Zemanová, Z., Ransdorfová, S., Pavlistová, L., Babická, L., Housková, L., Melichercíková, J., Sisková, M., Čermák, J. and Michalová, K. 2007. Structural aberrations of chromosome 7 revealed by a combination of molecular cytogenetic techniques in myeloid malignancies. *Cancer Genet. Cytogenet.* 173: 10-16.
9. Decatur, W.A. and Schnare, M.N. 2008. Different mechanisms for pseudouridine formation in yeast 5S and 5.8S rRNAs. *Mol. Cell. Biol.* 28: 3089-3100.

CHROMOSOMAL LOCATION

Genetic locus: PUS7 (human) mapping to 7q22.3.

PRODUCT

PUS7 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 PUS7 shRNA Plasmid (h): sc-89801-SH and PUS7 shRNA (h) Lentiviral Particles: sc-89801-V as alternate gene silencing products.

For independent verification of PUS7 (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-89801A, sc-89801B and sc-89801C.

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

PUS7 siRNA (h) is recommended for the inhibition of PUS7 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PUS7 gene expression knockdown using RT-PCR Primer: PUS7 (h)-PR: sc-89801-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.