

# TTC6 siRNA (h): sc-92423

## BACKGROUND

The tetratricopeptide repeat (TPR) motif is a degenerate, 34 amino acid sequence found in many proteins and acts to mediate protein-protein interactions in various pathways. At the sequence level, there can be up to 16 tandem TPR repeats, each of which has a helix-turn-helix shape that stacks on other TPR repeats to achieve ligand binding specificity. TTC6 (Tetratricopeptide repeat protein 6) is a 520 amino acid protein that contains 13 TPR repeats. The gene encoding TTC6 maps to human chromosome 14, which houses over 700 genes and comprises nearly 3.5% of the human genome. Chromosome 14 encodes the presenilin 1 (PSEN1) gene, which is one of the three key genes associated with the development of Alzheimer's disease (AD). The SERPINA1 gene is also located on chromosome 14 and, when defective, leads to the genetic disorder  $\alpha$ 1-antitrypsin deficiency, which is characterized by severe lung complications and liver dysfunction.

## REFERENCES

1. Heilig, R., Eckenberg, R., Petit, J., Fonknechten, N., Da Silva, C., Cattolico, L., Levy, M., Barbe, V., de Berardinis, V., Ureta-Vidal, A., Pelletier, E., Vico, V., Anthouard, V., Rowen, L., Madan, A., Qin, S., et al. 2003. The DNA sequence and analysis of human chromosome 14. *Nature* 421: 601-607.
2. Godbolt, A.K., Beck, J.A., Collinge, J., Garrard, P., Warren, J.D., Fox, N.C. and Rossor, M.N. 2004. A presenilin 1 R278L mutation presenting with language impairment. *Neurology* 63: 1702-1704.
3. Stolk, J., Seersholm, N. and Kalsheker, N. 2006.  $\alpha$ 1-antitrypsin deficiency: current perspective on research, diagnosis, and management. *Int. J. Chron. Obstruct. Pulmon. Dis.* 1: 151-160.
4. Vetrivel, K.S., Zhang, Y.W., Xu, H. and Thinakaran, G. 2006. Pathological and physiological functions of presenilins. *Mol. Neurodegener.* 1: 4.
5. Albani, D., Roiter, I., Artuso, V., Batelli, S., Prato, F., Pesaresi, M., Galimberti, D., Scarpini, E., Bruni, A., Franceschi, M., Piras, M.R., Confalonni, A. and Forloni, G. 2007. Presenilin-1 mutation E318G and familial Alzheimer's disease in the Italian population. *Neurobiol. Aging* 28: 1682-1688.
6. Cruz, P.E., Mueller, C. and Flotte, T.R. 2007. The promise of gene therapy for the treatment of  $\alpha$ 1 antitrypsin deficiency. *Pharmacogenomics* 8: 1191-1198.
7. Filley, C.M., Rollins, Y.D., Anderson, C.A., Arciniegas, D.B., Howard, K.L., Murrell, J.R., Boyer, P.J., Kleinschmidt-DeMasters, B.K. and Ghetti, B. 2007. The genetics of very early onset Alzheimer disease. *Cogn. Behav. Neurol.* 20: 149-156.
8. Martín-Subero, J.I., Ibbotson, R., Klapper, W., Michaux, L., Callet-Bauchu, E., Berger, F., Calasanz, M.J., De Wolf-Peters, C., Dyer, M.J., Felman, P., Gardiner, A., Gascoyne, R.D., Gesk, S., Harder, L., Horsman, D.E., et al. 2007. A comprehensive genetic and histopathologic analysis identifies two subgroups of B-cell malignancies carrying a t(14;19)(q32;q13) or variant Bcl-3 translocation. *Leukemia* 21: 1532-1544.
9. Micci, F., Panagopoulos, I., Tjønnefjord, G.E., Kolstad, A., Delabie, J., Beiske, K. and Heim, S. 2007. Molecular cytogenetic characterization of t(14;19)(q32;p13), a new recurrent translocation in B cell malignancies. *Virchows Arch.* 450: 559-565.

## CHROMOSOMAL LOCATION

Genetic locus: TTC6 (human) mapping to 14q21.1.

## PRODUCT

TTC6 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TTC6 shRNA Plasmid (h): sc-92423-SH and TTC6 shRNA (h) Lentiviral Particles: sc-92423-V as alternate gene silencing products.

For independent verification of TTC6 (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-92423A, sc-92423B and sc-92423C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

TTC6 siRNA (h) is recommended for the inhibition of TTC6 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  $\mu$ M in 66  $\mu$ 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 TTC6 gene expression knockdown using RT-PCR Primer: TTC6 (h)-PR: sc-92423-PR (20  $\mu$ 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](http://www.scbt.com) for detailed protocols and support products.