

TMEM55B siRNA (m): sc-154480

BACKGROUND

TMEM55B (transmembrane protein 55B) is an 277 amino acid multi-pass membrane protein that is ubiquitously expressed and catalyzes the hydrolysis of the 4-position phosphate of phosphatidylinositol 4,5-bisphosphate. TMEM55B exists as three alternatively spliced variants and is encoded by a gene mapping to human chromosome 14. Chromosome 14 contains about 700 genes and 106 million base pairs and makes up about 3.5% of human cellular DNA. Chromosome 14 encodes the presenilin 1 (PSEN1) gene, which is one of the three key genes associated with the development of Alzheimer's disease. The SERPINA1 gene is located on chromosome 14 and when defective leads to the genetic disorder α 1-antitrypsin deficiency. This disorder is characterized by severe lung complications and liver dysfunction. Notably, the immunoglobulin heavy chain locus is found on chromosome 14 and has been identified as a fusion with the chromosome 19 encoded protein BCL3 in the translocations found in a variety of B cell malignancies.

REFERENCES

1. Heilig, R., et al. 2003. The DNA sequence and analysis of human chromosome 14. *Nature* 421: 601-607.
2. Godbolt, A.K., et al. 2004. A presenilin 1 R278I mutation presenting with language impairment. *Neurology* 63: 1702-1704.
3. Ungewickell, A., et al. 2005. The identification and characterization of two phosphatidylinositol-4,5-bisphosphate 4-phosphatases. *Proc. Natl. Acad. Sci. USA* 102: 18854-18859.
4. Stolk, J., et al. 2006. Alpha1-antitrypsin deficiency: current perspective on research, diagnosis, and management. *Int. J. Chron. Obstruct. Pulmon. Dis.* 1: 151-160.
5. Vetrivel, K.S., et al. 2006. Pathological and physiological functions of presenilins. *Mol. Neurodegener.* 1: 4.
6. Albani, D., et al. 2007. Presenilin-1 mutation E318G and familial Alzheimer's disease in the Italian population. *Neurobiol. Aging* 28: 1682-1688.
7. Cruz, P.E., et al. 2007. The promise of gene therapy for the treatment of α -1 antitrypsin deficiency. *Pharmacogenomics* 8: 1191-1198.
8. Filley, C.M., et al. 2007. The genetics of very early onset Alzheimer disease. *Cogn. Behav. Neurol.* 20: 149-156.
9. Zou, J., et al. 2007. Type I phosphatidylinositol-4,5-bisphosphate 4-phosphatase regulates stress-induced apoptosis. *Proc. Natl. Acad. Sci. USA* 104: 16834-16839.

CHROMOSOMAL LOCATION

Genetic locus: Tmem55b (mouse) mapping to 14 C1.

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.

PRODUCT

TMEM55B siRNA (m) 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 TMEM55B shRNA Plasmid (m): sc-154480-SH and TMEM55B shRNA (m) Lentiviral Particles: sc-154480-V as alternate gene silencing products.

For independent verification of TMEM55B (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-154480A, sc-154480B and sc-154480C.

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

TMEM55B siRNA (m) is recommended for the inhibition of TMEM55B expression in mouse 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 TMEM55B gene expression knockdown using RT-PCR Primer: TMEM55B (m)-PR: sc-154480-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.