

TMEM195 siRNA (h): sc-89554

BACKGROUND

TMEM195 (transmembrane protein 195), also known as Alkylglycerol monooxygenase, is a 445 amino acid multi-pass membrane protein that belongs to the sterol desaturase family. TMEM195 cleaves the O-alkyl bond of ether lipids, which are essential components of brain membranes. The gene encoding TMEM195 maps to human chromosome 7, which is about 158 million bases long and encodes over 1,000 genes. Chromosome 7 has been linked to Osteogenesis imperfecta, Pendred syndrome, Lissencephaly, Citrullinemia and Shwachman-Diamond syndrome. The deletion of a portion of the q arm of chromosome 7 is associated with Williams-Beuren syndrome, a condition characterized by mild mental retardation, an unusual countenance and friendliness with strangers and an elfin appearance. Deletions of portions of the q arm of chromosome 7 are also seen in a number of myeloid disorders including cases of acute myelogenous leukemia and myelodysplasia.

REFERENCES

- Liang, H., Fairman, J., Claxton, D.F., Nowell, P.C., Green, E.D. and Nagarajan, L. 1998. Molecular anatomy of chromosome 7q deletions in myeloid neoplasms: evidence for multiple critical loci. *Proc. Natl. Acad. Sci. USA* 95: 3781-3785.
- Scherer, S.W., Cheung, J., MacDonald, J.R., Osborne, L.R., Nakabayashi, K., Herbrick, J.A., Carson, A.R., Parker-Katiraee, L., Skaug, J., Khaja, R., Zhang, J., Hudek, A.K., et al. 2003. Human chromosome 7: DNA sequence and biology. *Science* 300: 767-772.
- Brezinová, J., Zemanová, Z., Ransdorfová, S., Pavlistová, L., Babická, L., Housková, L., Melichercíková, J., Sisková, M., Cermák, 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.
- Renström, F., Shungin, D., Johansson, I., Florez, J.C., Hallmans, G., Hu, F.B. and Franks, P.W. 2010. Genetic predisposition to long-term non-diabetic deteriorations in glucose homeostasis: ten-year follow-up of the GLACIER study. *Diabetes* 60: 345-354.
- Boesgaard, T.W., Grarup, N., Jørgensen, T., Borch-Johnsen, K., Hansen, T. and Pedersen, O. 2010. Variants at DGKB/TMEM195, ADRA2A, GLIS3 and C2CD4B loci are associated with reduced glucose-stimulated β cell function in middle-aged Danish people. *Diabetologia* 53: 1647-1655.
- Akiyama, K., Narita, A., Nakaoka, H., Cui, T., Takahashi, T., Yasuno, K., Tajima, A., Kirschke, B., Yamamoto, K., Kasuya, H., Hata, A. and Inoue, I. 2010. Genome-wide association study to identify genetic variants present in Japanese patients harboring intracranial aneurysms. *J. Hum. Genet.* 55: 656-661.
- Dupuis, J., Langenberg, C., Prokopenko, I., Saxena, R., Soranzo, N., et al. 2010. New genetic loci implicated in fasting glucose homeostasis and their impact on type 2 diabetes risk. *Nat. Genet.* 42: 105-116.
- Watschinger, K., Keller, M.A., Golderer, G., Hermann, M., Maglione, M., Sarg, B., Lindner, H.H., Hermetter, A., Werner-Felmayer, G., Konrat, R., Hulo, N. and Werner, E.R. 2010. Identification of the gene encoding alkylglycerol monooxygenase defines a third class of tetrahydrobiopterin-dependent enzymes. *Proc. Natl. Acad. Sci. USA* 107: 13672-13677.

CHROMOSOMAL LOCATION

Genetic locus: AGMO (human) mapping to 7p21.2.

PRODUCT

TMEM195 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 TMEM195 shRNA Plasmid (h): sc-89554-SH and TMEM195 shRNA (h) Lentiviral Particles: sc-89554-V as alternate gene silencing products.

For independent verification of TMEM195 (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-89554A, sc-89554B and sc-89554C.

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

TMEM195 siRNA (h) is recommended for the inhibition of TMEM195 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 TMEM195 gene expression knockdown using RT-PCR Primer: TMEM195 (h)-PR: sc-89554-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.