SANTA CRUZ BIOTECHNOLOGY, INC.

TMEM93 siRNA (h): sc-94110

BACKGROUND

TMEM93 (transmembrane protein 93), also known as EMC6 (ER membrane protein complex subunit 6) is a 110 amino acid protein shown to regulate autophagaosome formation. TMEM93 deficiency results in the accumulation of autophagosomal precursor structures and impaired autophagy. TMEM93 interacts with both RAB5A and BECN1/Beclin 1 and was found to colocalize with the omegasome marker ZFYVE1/DFCP1. The TMEM93 gene maps to chromosome 17p13.2 and is conserved in chimpanzee, Rhesus monkey, canine, bovine, mouse, rat, chicken, zebrafish, fruit fly, mosquito, and frog. Chromosome 17 makes up over 2.5% of the human genome with about 81 million bases encoding over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1.

REFERENCES

1. Nusbaum, R., Vogel, K.J. and Ready, K. 2006. Susceptibility to breast cancer: hereditary syndromes and low penetrance genes. Breast Dis. 27: 21-50.
2. Suela, J., Largo, C., Ferreira, B., Alvarez, S., Robledo, M., González-Neira, A., Calasanz, M.J. and Cigudosa, J.C. 2007. Neurofibromatosis 1, and Not TP53, seems to be the main target of chromosome 17 deletions in *de novo* acute myeloid leukemia. J. Clin. Oncol. 25: 1151-1152
3. Tai, Y.C., Domchek, S., Parmigiani, G. and Chen, S. 2007. Breast cancer risk among male BRCA1 and BRCA2 mutation carriers. J. Natl. Cancer Inst. 99: 1811-1814.
4. Yan, J., Jiang, J., Lim, C.A., Wu, Q., Ng, H.H. and Chin, K.C. 2007. BLIMP1 regulates cell growth through repression of p53 transcription. Proc. Natl. Acad. Sci. USA 104: 1841-1846.
5. Christianson, J.C., Olzmann, J.A., Shaler, T.A., Sowa, M.E., Bennett, E.J., Richter, C.M., Tyler, R.E., Greenblatt, E.J., Harper, J.W. and Kopito, R.R. 2012. Defining human ERAD networks through an integrative mapping strategy. Nat. Cell Biol. 14: 93-105.
6. Li, Y., Zhao, Y., Hu, J., Xiao, J., Qu, L., Wang, Z., Ma, D. and Chen, Y. 2013. A novel ER-localized transmembrane protein, EMC6, interacts with RAB5A and regulates cell autophagy. Autophagy 9: 150-163.
7. Murn, J., Zarnack, K., Yang, Y.J., Durak, O., Murphy, E.A., Cheloufi, S., Gonzalez, D.M., Teplova, M., Curk, T., Zuber, J., Patel, D.J., Ule, J., Luscombe, N.M., et al. 2015. Control of a neuronal morphology program by an RNA-binding zinc finger protein, Unkempt. Genes Dev. 29: 501-512.

CHROMOSOMAL LOCATION

Genetic locus: EMC6 (human) mapping to 17p13.2.

PRODUCT

TMEM93 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TMEM93 shRNA Plasmid (h): sc-94110-SH and TMEM93 shRNA (h) Lentiviral Particles: sc-94110-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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

TMEM93 siRNA (h) is recommended for the inhibition of TMEM93 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 µM in 66 µl. 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 TMEM93 gene expression knockdown using RT-PCR Primer: TMEM93 (h)-PR: sc-94110-PR (20 µl). 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.