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mucolipin 1 siRNA (h): sc-44519

BACKGROUND

The gene encoding human mucolipin 1 maps to chromosome 19p13.2. Mutations in this gene cause a rare autosomal recessive lysosomal storage disease known as mucopolipidosis type IV (MLIV). Clinical characteristics of MLIV include psychomotor retardation, retinal degeneration, corneal opacities and strabismus. Mucolipin 1 localizes to the plasma membrane and contains six transmembrane domains. The carboxy terminus of mucolipin 1 shares sequence homology with Polycystin-2 and the transient receptor potential cation channel family. The concentration of intracellular Ca^{2+} regulates the permeability of mucolipin 1 to Ca^{2+} , Na^+ and K^+ . The influence of Ca^{2+} on mucolipin 1 represents a possible role for mucolipin 1 in lysosomal exocytosis and the trafficking of late endosomes and lysosomes.

REFERENCES

- Merin, S., Livni, N., Berman, E.R. and Yatziv, S. 1975. Mucopolipidosis IV: ocular, systemic and ultrastructural findings. *Invest. Ophthalmol.* 14: 437-448.
- Bargal, R., Avidan, N., Ben-Asher, E., Olender, Z., Zeigler, M., Frumkin, A., Raas-Rothschild, A., Glusman, G., Lancet, D. and Bach, G. 2000. Identification of the gene causing mucopolipidosis type IV. *Nat. Genet.* 26: 118-123.
- Sun, M., Goldin, E., Stahl, S., Falardeau, J.L., Kennedy, J.C., Acierno, J.S., Jr., Bove, C., Kaneski, C.R., Nagle, J., Bromley, M.C., Colman, M., Schiffmann, R. and Slaugenaupt, S.A. 2000. Mucopolipidosis type IV is caused by mutations in a gene encoding a novel transient receptor potential channel. *Hum. Mol. Genet.* 9: 2471-2478.

CHROMOSOMAL LOCATION

Genetic locus: MCOLN1 (human) mapping to 19p13.2.

PRODUCT

mucolipin 1 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 mucolipin 1 shRNA Plasmid (h): sc-44519-SH and mucolipin 1 shRNA (h) Lentiviral Particles: sc-44519-V as alternate gene silencing products.

For independent verification of mucolipin 1 (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-44519A, sc-44519B and sc-44519C.

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

mucolipin 1 siRNA (h) is recommended for the inhibition of mucolipin 1 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.

GENE EXPRESSION MONITORING

mucolipin 1 (F-10): sc-398868 is recommended as a control antibody for monitoring of mucolipin 1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor mucolipin 1 gene expression knockdown using RT-PCR Primer: mucolipin 1 (h)-PR: sc-44519-PR (20 μ l, 467 bp). Annealing temperature for the primers should be $55-60^{\circ}$ C and the extension temperature should be $68-72^{\circ}$ C.

SELECT PRODUCT CITATIONS

- Xu, Y., Du, S., Marsh, J.A., Horie, K., Sato, C., Ballabio, A., Karch, C.M., Holtzman, D.M. and Zheng, H. 2020. TFEB regulates lysosomal exocytosis of tau and its loss of function exacerbates Tau pathology and spreading. *Mol. Psychiatry*. E-published.

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.