SANTA CRUZ BIOTECHNOLOGY, INC.

TMEM38A siRNA (h): sc-97105

BACKGROUND

TMEM38A (transmembrane protein 38A), also known as TRICA (trimeric intracellular cation channel type A), is a 299 amino acid multi-pass membrane protein that belongs to the TMEM38 family and exists as a homotrimer. The second transmembrane domain within TMEM38A has been proposed to cross only half of the lipid bilayer and to loop back into the cytosol. This results in the regions on each side of this domain to localize to the cytosolic face of the membrane. The cytosolic loop may form an ion-conducting pore. While it may act as a potassium counter-ion channel that functions in synchronization with calcium release from intracellular stores, TMEM38A is known to be a monovalent cation channel that is required for maintenance of rapid intracellular calcium release. The gene that encodes TMEM38A consists of approximately 27,893 bases and maps to human chromosome 19p13.11.

REFERENCES

1. Yazawa, M., et al. 2007. TRIC channels are essential for Ca^{2+} handling in intracellular stores. Nature 448: 78-82.
2. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611235. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Yamazaki, D., et al. 2009. Essential role of the TRIC-B channel in Ca^{2+} handling of alveolar epithelial cells and in perinatal lung maturation. Development 136: 2355-2361.
4. Yamazaki, D., et al. 2009. New molecular components supporting ryanodine receptor-mediated Ca^{2+} release: roles of junctophilin and TRIC channel in embryonic cardiomyocytes. Pharmacol. Ther. 121: 265-272.
5. Zhao, X., et al. 2010. Ca^{2+} overload and sarcoplasmic reticulum instability in tric-a null skeletal muscle. J. Biol. Chem. 285: 37370-37376.
6. Yamazaki, D., et al. 2011. TRIC-A channels in vascular smooth muscle contribute to blood pressure maintenance. Cell Metab. 14: 231-241.
7. Wilkie, G.S., et al. 2011. Several novel nuclear envelope transmembrane proteins identified in skeletal muscle have cytoskeletal associations. Mol. Cell. Proteomics 10: M110.003129.

CHROMOSOMAL LOCATION

Genetic locus: TMEM38A (human) mapping to 19p13.11.

PRODUCT

TMEM38A 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TMEM38A shRNA Plasmid (h): sc-97105-SH and TMEM38A shRNA (h) Lentiviral Particles: sc-97105-V as alternate gene silencing products.

For independent verification of TMEM38A (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-97105A, sc-97105B and sc-97105C.

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

TMEM38A siRNA (h) is recommended for the inhibition of TMEM38A 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.

GENE EXPRESSION MONITORING

TMEM38A (G-12): sc-390054 is recommended as a control antibody for monitoring of TMEM38A 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 TMEM38A gene expression knockdown using RT-PCR Primer: TMEM38A (h)-PR: sc-97105-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.