SANTA CRUZ BIOTECHNOLOGY, INC.

TIMMDC1 siRNA (h): sc-78506

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The Power to Question

BACKGROUND

TIMMDC1 (translocase of inner mitochondrial membrane domain-containing protein 1), also known as Protein M5-14 or C3orf1 (chromosome 3 open reading frame 1), is a 285 amino acid multi-pass mitochondrion membrane protein that has enhanced expression in heart and skeletal muscle. It has been shown that TIMMDC1 expression is high in lung carcinoma cells, with depletion of TIMMDC1 resulting in inhibition of cell migration and proliferation. It is suggested the TIMMDC1 plays a role as a chaperone protein in construction the membrane arm of mitochondrial respiratory complex I. The mitochondrial respiratory complex I couples electron transfer to the release of protons into the mitochondrial inner membrane space to promote ATP production through ATP synthase, as part of the electron transport chain. The TIMMDC1 gene is conserved in chimpanzee, Rhesus monkey, canine, bovine, mouse, rat, chicken, zebrafish and *Drosophila*.

REFERENCES

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2. Wang, G., Yang, Y. and Ott, J. 2010. Genome-wide conditional search for epistatic disease-predisposing variants in human association studies. Hum. Hered. 70: 34-41.
3. Andrews, B., Carroll, J., Ding, S., Fearnley, I.M. and Walker, J.E. 2013. Assembly factors for the membrane arm of human complex I. Proc. Natl. Acad. Sci. USA 110: 18934-18939.
4. Wu, H., Wang, W. and Xu, H. 2014. Depletion of C3orf1/TIMMDC1 inhibits migration and proliferation in 95D lung carcinoma cells. Int. J. Mol. Sci. 15: 20555-20571.
5. Guarani, V., Paulo, J., Zhai, B., Huttlin, E.L., Gygi, S.P. and Harper, J.W. 2014. TIMMDC1/C3orf1 functions as a membrane-embedded mitochondrial complex I assembly factor through association with the MCIA complex. Mol. Cell. Biol. 34: 847-861.

CHROMOSOMAL LOCATION

Genetic locus: TIMMDC1 (human) mapping to 3q13.33.

PRODUCT

TIMMDC1 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 TIMMDC1 shRNA Plasmid (h): sc-78506-SH and TIMMDC1 shRNA (h) Lentiviral Particles: sc-78506-V as alternate gene silencing products.

For independent verification of TIMMDC1 (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-78506A, sc-78506B and sc-78506C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support 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

TIMMDC1 siRNA (h) is recommended for the inhibition of TIMMDC1 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

TIMMDC1 (G-10): sc-514927 is recommended as a control antibody for monitoring of TIMMDC1 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 TIMMDC1 gene expression knockdown using RT-PCR Primer: TIMMDC1 (h)-PR: sc-78506-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.