SANTA CRUZ BIOTECHNOLOGY, INC.

Mitofilin siRNA (m): sc-75792

BACKGROUND

Cristae are highly folded inner mitochondrial membrane compartments that are studded with cytochromes and ATP synthase proteins and function to provide a large surface area upon which cellular respiration can occur. Mitofilin, also known as IMMT, HMP, PIG4 or P87/89, is a 758 amino acid inner mitochondrial membrane protein that is preferentially expressed in heart tissue. Existing as three alternatively spliced isoforms, Mitofilin functions to control mitochondrial cristae morphology, including the formation and organization of cristae junctions and normal tubular cristae. Due to its role in mediating cristae structure and function, Mitofilin is essential for normal mitochondrial function and is, thus, critical to overall cell survival.

REFERENCES

1. Icho, T., et al. 1994. A novel human gene that is preferentially transcribed in heart muscle. Gene 144: 301-306.
2. Odgren, P.R., et al. 1996. Molecular characterization of mitofilin (HMP), a mitochondria-associated protein with predicted coiled coil and intermembrane space targeting domains. J. Cell Sci. 109: 2253-2264.
3. Gieffers, C., et al. 1997. Mitofilin is a transmembrane protein of the inner mitochondrial membrane expressed as two isoforms. Exp. Cell Res. 232: 395-399.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 600378. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. John, G.B., et al. 2005. The mitochondrial inner membrane protein mitofilin controls cristae morphology. Mol. Biol. Cell 16: 1543-1554.
6. Xie, J., et al. 2007. The mitochondrial inner membrane protein mitofilin exists as a complex with SAM50, metaxins 1 and 2, coiled-coil-helix coiled-coil-helix domain-containing protein 3 and 6 and DnaJC11. FEBS Lett. 581: 3545-3549.
7. Pföhler, C., et al. 2007. Mitofilin and titin as target antigens in melanoma-associated retinopathy. Int. J. Cancer 120: 788-795.
8. Lai, Y., et al. 2008. Identification of poly-ADP-ribosylated mitochondrial proteins after traumatic brain injury. J. Neurochem. 104: 1700-1711.

CHROMOSOMAL LOCATION

Genetic locus: Immt (mouse) mapping to 6 C1.

PRODUCT

Mitofilin siRNA (m) 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 Mitofilin shRNA Plasmid (m): sc-75792-SH and Mitofilin shRNA (m) Lentiviral Particles: sc-75792-V as alternate gene silencing products.

For independent verification of Mitofilin (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-75792A, sc-75792B and sc-75792C.

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

Mitofilin siRNA (m) is recommended for the inhibition of Mitofilin expression in mouse 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

Mitofilin (D-3): sc-390707 is recommended as a control antibody for monitoring of Mitofilin 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 Mitofilin gene expression knockdown using RT-PCR Primer: Mitofilin (m)-PR: sc-75792-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.