SANTA CRUZ BIOTECHNOLOGY, INC.

LETM1 siRNA (h): sc-89079

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The Power to Question

BACKGROUND

LETM1 (leucine zipper-EF-hand-containing transmembrane protein 1, mitochondrial) is a 739 amino acid protein that localizes to the mitochondrial membrane and contains one LETM1 domain and two EF-hand calcium-binding domains. Expressed in all fetal and adult tissues, LETM1 has a leucine zipper motif, a transmembrane domain and several phosphorylation sites and, via its EF-hand domains, may function as a calcium-binding protein. Additionally, LETM1 is thought to be involved in maintaining normal mitochondrial function and overall cell viability. Human LETM1 shares 84% similarity with its mouse counterpart, suggesting a conserved role between species. Deletions in the gene encoding LETM1 are associated with Wolf-Hirschhorn syndrome (WHS), a congenital syndrome characterized by a number of abnormalities, including mental retardation, seizures, heart defects, fused teeth, hearing loss, a webbed neck and renal abnormalities.

REFERENCES

1. Endele, S., et al. 1999. LETM1, a novel gene encoding a putative EF-hand Ca^{2+}-binding protein, flanks the Wolf-Hirschhorn syndrome (WHS) critical region and is deleted in most WHS patients. Genomics 60: 218-225.
2. Rauch, A., et al. 2001. First known microdeletion within the Wolf-Hirschhorn syndrome critical region refines genotype-phenotype correlation. Am. J. Med. Genet. 99: 338-342.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604407. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: LETM1 (human) mapping to 4p16.3.

PRODUCT

LETM1 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 LETM1 shRNA Plasmid (h): sc-89079-SH and LETM1 shRNA (h) Lentiviral Particles: sc-89079-V as alternate gene silencing products.

For independent verification of LETM1 (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-89079A, sc-89079B and sc-89079C.

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

LETM1 siRNA (h) is recommended for the inhibition of LETM1 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

LETM1 (D-5): sc-271235 is recommended as a control antibody for monitoring of LETM1 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 LETM1 gene expression knockdown using RT-PCR Primer: LETM1 (h)-PR: sc-89079-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, J., et al. 2016. Coupling of LETM1 up-regulation with oxidative phosphorylation and platelet-derived growth factor receptor signaling via YAP1 transactivation. Oncotarget 7: 66728-66739.

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.