SANTA CRUZ BIOTECHNOLOGY, INC.

TMEM43 siRNA (m): sc-77360

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

TMEM43 (transmembrane protein 43), also known as LUMA, ARVC5 or ARVD5, is a 400 amino acid multi-pass membrane protein that localizes to the inner nuclear membrane, as well as to the endoplasmic reticulum. Highly expressed in placenta and present at lower levels in ovary, heart, thymus, spleen, prostate, testis and small intestine, TMEM43 is required for retaining emerin at the nuclear membrane and may also play an important role in the maintenance of nuclear envelope structure. Defects in the gene encoding TMEM43 are the cause of familial arrhythmogenic right ventricular dysplasia type 5 (ARVD5), an inherited disorder that is characterized by heart failure, ventricular tachycardia, fibrofatty replacement of cardiomyocytes and sudden cardiac death.

REFERENCES

1. Ahmad, F., et al. 1998. Localization of a gene responsible for arrhythmogenic right ventricular dysplasia to chromosome 3p23. Circulation 98: 2791-2795.
2. Norman, M.W. and McKenna, W.J. 1999. Arrhythmogenic right ventricular cardiomyopathy: perspectives on disease. Z. Kardiol. 88: 550-554.
3. Li, D., et al. 2000. The locus of a novel gene responsible for arrhythmogenic right-ventricular dysplasia characterized by early onset and high penetrance maps to chromosome 10p12-p14. Am. J. Hum. Genet. 66: 148-156.
4. Dreger, M., et al. 2001. Nuclear envelope proteomics: novel integral membrane proteins of the inner nuclear membrane. Proc. Natl. Acad. Sci. USA 98: 11943-11948.
5. Merner, N.D., et al. 2008. Arrhythmogenic right ventricular cardiomyopathy type 5 is a fully penetrant, lethal arrhythmic disorder caused by a missense mutation in the TMEM43 gene. Am. J. Hum. Genet. 82: 809-821.
6. Bengtsson, L. and Otto, H. 2008. LUMA interacts with emerin and influences its distribution at the inner nuclear membrane. J. Cell Sci. 121: 536-548.

CHROMOSOMAL LOCATION

Genetic locus: Tmem43 (mouse) mapping to 6 D1.

PRODUCT

TMEM43 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 TMEM43 shRNA Plasmid (m): sc-77360-SH and TMEM43 shRNA (m) Lentiviral Particles: sc-77360-V as alternate gene silencing products.

For independent verification of TMEM43 (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-77360A, sc-77360B and sc-77360C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

TMEM43 siRNA (m) is recommended for the inhibition of TMEM43 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

TMEM43 (E-1): sc-365298 is recommended as a control antibody for monitoring of TMEM43 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 TMEM43 gene expression knockdown using RT-PCR Primer: TMEM43 (m)-PR: sc-77360-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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