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SANTA CRUZ BIOTECHNOLOGY, INC.

MAN1 siRNA (h): sc-43384

BACKGROUND

The nuclear envelope separates the nucleoplasm from the cytoplasm in eukaryotic cells and includes the outer and inner nuclear membrane, nuclear pore complexes and the nuclear lamina. The nuclear lamina contains intermediate filament-type proteins called lamins that form a dense network to strengthen and stabilize the nuclear envelope. MAN1 is a nuclear envelope protein and shares a constant amino-terminal region called the LAP2-emerin-MAN1 (LEM) motif with nuclear envelope proteins LAP2 and emerin. MAN1 belongs to the MAN antigen family identified by autoantibodies from a patient with collagen vascular disease. A nucleoplasmic N-terminal domain of MAN1 is necessary for inner nuclear membrane retention. The gene encoding human MAN1 maps to chromosome 12q14.3. LAP2 is another nuclear envelope protein with a LEM motif. Alternative splicing produces six isoforms of mammalian LAP2. LAP2α and LAP2β associate with chromosomal barrier-to-autointegration factor (BAF) and may play a role in stabilizing chromatin structure. LAP2β also binds to Lamin B. LAP2α is a non-membrane isoform of LAP2 that associates with the internal nucleoskeleton and binds Lamin A.

REFERENCES

1. Paulin-Levasseur, M., et al. 1996. The MAN antigens are non-lamin constituents of the nuclear lamina in vertebrate cells. Chromosoma 104: 367-379.
2. Lin, F., et al. 2000. MAN1, an inner nuclear membrane protein that shares the LEM domain with lamina-associated polypeptide 2 and emerin. J. Biol. Chem. 275: 4840-4847.
3. Dechat, T., et al. 2000. Review: lamina-associated polypeptide 2 isoforms and related proteins in cell cycle-dependent nuclear structure dynamics. J. Struct. Biol. 129: 335-345.
4. Dechat, T., et al. 2000. Lamina-associated polypeptide 2α binds intranuclear A-type lamins. J. Cell Sci. 113: 3473-3484.
5. Wu, W., et al. 2002. Intracellular trafficking of MAN1, an integral protein of the nuclear envelope inner membrane. J. Cell Sci. 115: 1361-1371.

CHROMOSOMAL LOCATION

Genetic locus: LEMD3 (human) mapping to 12q14.3.

PRODUCT

MAN1 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 MAN1 shRNA Plasmid (h): sc-43384-SH and MAN1 shRNA (h) Lentiviral Particles: sc-43384-V as alternate gene silencing products.

For independent verification of MAN1 (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-43384A, sc-43384B and sc-43384C.

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

MAN1 siRNA (h) is recommended for the inhibition of MAN1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MAN1 gene expression knockdown using RT-PCR Primer: MAN1 (h)-PR: sc-43384-PR (20 µl, 550 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Bermeo, S., et al. 2017. The role of the nuclear envelope protein MAN1 in mesenchymal stem cell differentiation. J. Cell. Biochem. 118: 4425-4435.

RESEARCH USE

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