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SANTA CRUZ BIOTECHNOLOGY, INC.

NDC1 siRNA (m): sc-149861

BACKGROUND

NDC1 (nucleoporin NDC1), also known as TMEM48 (transmembrane protein 48) or NET3, is a 674 amino acid multi-pass membrane protein, central core structure of the nuclear pore complex (NPC) and member of the NDC1 family that is crucial for selective nuclear protein import. Existing as four alternatively spliced isoforms that are encoded by a gene located on human chromosome 1, NDC1 interacts with Nup35 and anchors Aladin to the nuclear envelope of the NPC, a region of macromolecular transport between the nucleus and cytoplasm. In the absence of NDC1, Aladin becomes mislocalized and may lead to the development of an autosomal recessive disorder termed achalasia-addisonianism-alacrima (triple A) syndrome. Triple A syndrome is characterized by achalasia, alacrima and adrenocortico-tropin-resistant adrenal insufficiency. Robust expression in neural systems associated with cognitive, motor and sensory functions is consistent with the myriad of symptoms experienced by patients with triple A syndrome.

REFERENCES

1. Schirmer, E.C., et al. 2003. Nuclear membrane proteins with potential disease links found by subtractive proteomics. Science 301: 1380-1382.
2. Lau, C.K., et al. 2006. Topology of yeast Ndc1p: predictions for the human NDC1/NET3 homologue. Anat. Rec. A Discov. Mol. Cell Evol. Biol. 288: 681-694.
3. Mansfeld, J., et al. 2006. The conserved transmembrane nucleoporin NDC1 is required for nuclear pore complex assembly in vertebrate cells. Mol. Cell 22: 93-103.
4. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 610115. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Yamazumi, Y., et al. 2009. The transmembrane nucleoporin NDC1 is required for targeting of ALADIN to nuclear pore complexes. Biochem. Biophys. Res. Commun. 389: 100-104.
6. Kind, B., et al. 2009. The nuclear pore complex protein ALADIN is anchored via NDC1 but not via POM121 and GP210 in the nuclear envelope. Biochem. Biophys. Res. Commun. 390: 205-210.

CHROMOSOMAL LOCATION

Genetic locus: Tmem48 (mouse) mapping to 4 C7.

PRODUCT

NDC1 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 NDC1 shRNA Plasmid (m): sc-149861-SH and NDC1 shRNA (m) Lentiviral Particles: sc-149861-V as alternate gene silencing products.

For independent verification of NDC1 (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-149861A, sc-149861B and sc-149861C.

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

NDC1 siRNA (m) is recommended for the inhibition of NDC1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NDC1 gene expression knockdown using RT-PCR Primer: NDC1 (m)-PR: sc-149861-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.