SANTA CRUZ BIOTECHNOLOGY, INC.

DNC siRNA (m): sc-143119

BACKGROUND

Members of the mitochondrial carrier family transport a variety of metabolites across the inner mitochondrial membrane. DNC, also known as SLC25A19 (solute carrier family 25 member 19) or MUP1 (mitochondrial uncoupling protein 1), is a 320 amino acid member of the mitochondrial carrier protein family. DNC acts as a mitochondrial transporter which mediates the uptake of thiamine pyrophosphate (ThPP) into the mitochondria. DNC contains three Solcar repeats and is expressed in all tissue except placenta. Highest levels of DNC are found in spleen, lung, testis, brain, colon and kidney. Defects in the gene that encodes DNC are the cause of microcephaly Amish type (MCPHA). MCPHA is an autosomal recessive metabolic disorder characterized by extreme 2-ketoglutaric aciduria, severe congenital microcephaly and death within the first year of life.

REFERENCES

1. Iacobazzi, V., et al. 2001. Genomic organization and mapping of the gene (SLC25A19) encoding the human mitochondrial deoxynucleotide carrier (DNC). Cytogenet. Cell Genet. 93: 40-42.
2. Dolce, V., et al. 2001. The human mitochondrial deoxynucleotide carrier and its role in the toxicity of nucleoside antivirals. Proc. Natl. Acad. Sci. USA 98: 2284-2288.
3. Rosenberg, M.J., et al. 2002. Mutant deoxynucleotide carrier is associated with congenital microcephaly. Nat. Genet. 32: 175-179.
4. Lam, W., et al. 2005. Expression of deoxynucleotide carrier is not associated with the mitochondrial DNA depletion caused by anti-HIV dideoxynucleoside analogs and mitochondrial dNTP uptake. Mol. Pharmacol. 67: 408-416.
5. Lindhurst, M.J., et al. 2006. Knockout of Slc25a19 causes mitochondrial thiamine pyrophosphate depletion, embryonic lethality, CNS malformations, and anemia. Proc. Natl. Acad. Sci. USA 103: 15927-15932.
6. Kang, J., et al. 2008. The evidence that the DNC (SLC25A19) is not the mitochondrial deoxyribonucleotide carrier. Mitochondrion 8: 103-108.
7. Spiegel, R., et al. 2009. SLC25A19 mutation as a cause of neuropathy and bilateral striatal necrosis. Ann. Neurol. 66: 419-424.

CHROMOSOMAL LOCATION

Genetic locus: Slc25a19 (mouse) mapping to 11 E2.

PRODUCT

DNC siRNA (m) is a target-specific 19-25 nt siRNA 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 DNC shRNA Plasmid (m): sc-143119-SH and DNC shRNA (m) Lentiviral Particles: sc-143119-V as alternate gene silencing products.

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

DNC siRNA (m) is recommended for the inhibition of DNC 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 DNC gene expression knockdown using RT-PCR Primer: DNC (m)-PR: sc-143119-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.