

NUDT14 siRNA (m): sc-150104

BACKGROUND

NUDT14 (nudix (nucleoside diphosphate linked moiety X)-type motif 14), also known as UGPP or UGPPase (uridine diphosphate glucose pyrophosphatase), is a 222 amino acid cytoplasmic protein that contains one nudix hydrolase domain and belongs to the nudix hydrolase family. NUDT14 hydrolyzes ADP-ribose into ribose 5-phosphate and AMP, and UDP-glucose to glucose 1-phosphate and UMP; other nucleotide sugars such as CDP-glucose, ADP-glucose, GDP-mannose and GDP-glucose are poor NUDT14 substrates. Existing as a homodimer, NUDT14 binds magnesium as a cofactor and is encoded by a gene located on human chromosome 14. Chromosome 14 encodes the presenilin 1 (PSEN1) gene, which is one of the three key genes associated with the development of Alzheimer's disease (AD). The SERPINA1 gene is also located on chromosome 14 and, when defective, leads to the genetic disorder α 1-antitrypsin deficiency, which is characterized by severe lung complications and liver dysfunction.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609219. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
2. Yagi, T., et al. 2003. Cloning, expression and characterization of a mammalian Nudix hydrolase-like enzyme that cleaves the pyrophosphate bond of UDP-glucose. *Biochem. J.* 370: 409-415.
3. Avramopoulos, D., et al. 2005. Linkage to chromosome 14q in Alzheimer's disease (AD) patients without psychotic symptoms. *Am. J. Med. Genet. B Neuropsychiatr. Genet.* 132B: 9-13.
4. Mildvan, A.S., et al. 2005. Structures and mechanisms of Nudix hydrolases. *Arch. Biochem. Biophys.* 433: 129-143.
5. Heyen, C.A., et al. 2009. Characterization of mouse UDP-glucose pyrophosphatase, a Nudix hydrolase encoded by the Nudt14 gene. *Biochem. Biophys. Res. Commun.* 390: 1414-1418.
6. Lerner, A.J., et al. 2009. Genotype-phenotype relationships of presenilin-1 mutations in Alzheimer's disease: an update. *J. Alzheimers Dis.* 17: 259-265.
7. Topic, A., et al. 2009. α -1-antitrypsin phenotypes in adult liver disease patients. *Ups. J. Med. Sci.* 114: 228-234.

CHROMOSOMAL LOCATION

Genetic locus: Nudt14 (mouse) mapping to 12 F1.

PRODUCT

NUDT14 siRNA (m) is a pool of 2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NUDT14 shRNA Plasmid (m): sc-150104-SH and NUDT14 shRNA (m) Lentiviral Particles: sc-150104-V as alternate gene silencing products.

For independent verification of NUDT14 (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-150104A and sc-150104B.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

NUDT14 siRNA (m) is recommended for the inhibition of NUDT14 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 μ M in 66 μ l. 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 NUDT14 gene expression knockdown using RT-PCR Primer: NUDT14 (m)-PR: sc-150104-PR (20 μ l). 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.