SANTA CRUZ BIOTECHNOLOGY, INC.

GNPAT siRNA (m): sc-145655

BACKGROUND

GNPAT (glyceronephosphate O-acyltransferase), also known as DAP-AT (dihydroxyacetone phosphate acyltransferase) or acyl-CoA:dihydroxyacetonephosphateacyltransferase, is a 680 amino acid peroxisomal membrane protein that belongs to the GPAT/DAPAT family. GNPAT acts as a key member in ether phospholipid biosythesis, and may also be a member of the heterotrimeric complex, which consists of GNPAT, AGPS and a modified form of GNPAT. The gene encoding GNPAT maps to human chromosome 1q42.2. Defects to this gene are associated with rhizomelic chondrodysplasia punctata, a disease characterized by rhizomelic shortening of femur and humerus, vertebral disorders, cataracts, cutaneous lesions and severe mental retardation. Single-nucleotide polymorphisms (SNPs) present on the gene encoding GNPAT may result in vulnerability to schizophrenia.

REFERENCES

1. Wanders, R.J., et al. 1992. Human dihydroxyacetonephosphate acyltransferase deficiency: a new peroxisomal disorder. J. Inherit. Metab. Dis. 15: 389-391.
2. Webber, K.O. and Hajra, A.K. 1993. Purification of dihydroxyacetone phosphate acyltransferase from Guinea pig liver peroxisomes. Arch. Biochem. Biophys. 300: 88-97.
3. Ofman, R. and Wanders, R.J. 1994. Purification of peroxisomal acyl-CoA: dihydroxyacetonephosphate acyltransferase from human placenta. Biochim. Biophys. Acta 1206: 27-34.
4. Thai, T.P., et al. 1997. Ether lipid biosynthesis: isolation and molecular characterization of human dihydroxyacetonephosphate acyltransferase. FEBS Lett. 420: 205-211.
5. Elias, E.R., et al. 1998. Developmental delay and growth failure caused by a peroxisomal disorder, dihydroxyacetonephosphate acyltransferase (DHAP-AT) deficiency. Am. J. Med. Genet. 80: 223-226.
6. Ofman, R., et al. 1998. Acyl-CoA:dihydroxyacetonephosphate acyltransferase: cloning of the human cDNA and resolution of the molecular basis in rhizomelic chondrodysplasia punctata type 2. Hum. Mol. Genet. 7: 847-853.
7. Ofman, R., et al. 2001. Etherphospholipid biosynthesis and dihydroxyacetone-phosphate acyltransferase: resolution of the genomic organization of the human gnpat gene and its use in the identification of novel mutations. Biochem. Biophys. Res. Commun. 281: 754-760.
8. Thai, T.P., et al. 2001. Impaired membrane traffic in defective ether lipid biosynthesis. Hum. Mol. Genet. 10: 127-136.
9. Rodemer, C., et al. 2003. Inactivation of ether lipid biosynthesis causes male infertility, defects in eye development and optic nerve hypoplasia in mice. Hum. Mol. Genet. 12: 1881-1895.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: Gnpat (mouse) mapping to 8 E2.

PRODUCT

GNPAT 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 GNPAT shRNA Plasmid (m): sc-145655-SH and GNPAT shRNA (m) Lentiviral Particles: sc-145655-V as alternate gene silencing 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

GNPAT siRNA (m) is recommended for the inhibition of GNPAT 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 GNPAT gene expression knockdown using RT-PCR Primer: GNPAT (m)-PR: sc-145655-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.