SANTA CRUZ BIOTECHNOLOGY, INC.

GPAT2 siRNA (h): sc-94904

BACKGROUND

GPAT2 (glycerol-3-phosphate acyltransferase 2, mitochondrial), also known as Gm116 or xGPAT1, is an 801 amino acid mitochondrial multi-pass membrane protein belonging to the GPAT/DAPAT family. GPAT2 is highly expressed in testis with lower levels in heart, liver, kidney, spleen and adipose cells. Inhibited by N-ethylmaleimide (NEM), GPAT2 esterifies an acyl-group from acyl-ACP to the sn-1 position of glycerol-3-phosphate, an essential step in glycerolipid biosynthesis. GPAT2 contain a HXXXXD motif, which is critical for acyltransferase activity and may constitute the binding site for the phosphate moiety of the glycerol-3-phosphate. Three isoforms of GPAT2 exist due to alternative splicing events.

REFERENCES

1. Stein, T.A., et al. 1992. Inhibition of glycerol-3-phosphate acyltransferase by analogs of glycerol-3-phosphate. Biochim. Biophys. Acta 1123: 249-256.
2. Yet, S.F., et al. 1993. Expression and identification of p90 as the murine mitochondrial glycerol-3-phosphate acyltransferase. Biochemistry 32: 9486-9491.
3. Dircks, L.K., et al. 1997. Mammalian mitochondrial glycerol-3-phosphate acyltransferase. Biochim. Biophys. Acta 1348: 17-26.
4. Cao, J., et al. 2006. Molecular identification of microsomal acyl-CoA: glycerol-3-phosphate acyltransferase, a key enzyme in *de novo* triacylglycerol synthesis. Proc. Natl. Acad. Sci. USA 103: 19695-19700.
5. Harada, N., et al. 2007. Molecular cloning of a murine glycerol-3-phosphate acyltransferase-like protein 1 (xGPAT1). Mol. Cell. Biochem. 297: 41-51.
6. Takeuchi, K., et al. 2009. Biochemistry, physiology, and genetics of GPAT, AGPAT, and lipin enzymes in triglyceride synthesis. Am. J. Physiol. Endocrinol. Metab. 296: 1195-1209.
7. Wydysh, E.A., et al. 2009. Design and synthesis of small molecule glycerol 3-phosphate acyltransferase inhibitors. J. Med. Chem. 52: 3317-3327.

CHROMOSOMAL LOCATION

Genetic locus: GPAT2 (human) mapping to 2q11.1.

PRODUCT

GPAT2 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 GPAT2 shRNA Plasmid (h): sc-94904-SH and GPAT2 shRNA (h) Lentiviral Particles: sc-94904-V as alternate gene silencing products.

For independent verification of GPAT2 (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-94904A, sc-94904B and sc-94904C.

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

GPAT2 siRNA (h) is recommended for the inhibition of GPAT2 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 GPAT2 gene expression knockdown using RT-PCR Primer: GPAT2 (h)-PR: sc-94904-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.