SANTA CRUZ BIOTECHNOLOGY, INC.

LPAAT-β siRNA (h): sc-75688

BACKGROUND

Phosphatidic acid and lysophosphatidic acid are phospholipids involved in lipid biosynthesis and signal transduction. LPAAT-β (lysophosphatidic acid acyltransferase, β), also known as AGPAT2, BSCL, BSCL1, LPAAB or 1-AGPAT2 (1-acylglycerol-3-phosphate O-acyltransferase 2), is a multi-pass membrane protein localized to the endoplasmic reticulum that catalyzes the synthesis of phosphatidic acid from lysophosphatidic acid. Predominantly expressed in heart and liver, LPAAT-β belongs to the LPAAT family of proteins that have a well-known role in lipid biosynthesis. In addition, LPAAT family members may also play a role in tumor progression. Mutations in the gene encoding LPAAT-β can result in the autosomal recessive disorder CGL1 (congenital generalized lipodystrophy type 1). CGL1, also known as Berardinelli-Seip congenital lipodystrophy type 1 (BSCL1), is a disorder characterized by Insulin resistance, early onset of diabetes, hepatic steatosis, scarcity of adipose tissue and hypertriglyceridemia.

REFERENCES

1. West, J., Tompkins, C.K., Balantac, N., Nudelman, E., Meengs, B., White, T., Bursten, S., Coleman, J., Kumar, A., Singer, J.W. and Leung, D.W. 1997. Cloning and expression of two human lysophosphatidic acid acyltransferase cDNAs that enhance cytokine-induced signaling responses in cells. DNA Cell Biol. 16: 691-701.
2. Eberhardt, C., Gray, P.W. and Tjoelker, L.W. 1997. Human lysophosphatidic acid acyltransferase. cDNA cloning, expression, and localization to chromosome 9q34.3. J. Biol. Chem. 272: 20299-20305.
3. Aguado, B. and Campbell, R.D. 1998. Characterization of a human lysophosphatidic acid acyltransferase that is encoded by a gene located in the class III region of the human major histocompatibility complex. J. Biol. Chem. 273: 4096-4105.
4. Agarwal, A.K., Arioglu, E., De Almeida, S., Akkoc, N., Taylor, S.I., Bowcock, A.M., Barnes, R.I. and Garg, A. 2002. AGPAT2 is mutated in congenital generalized lipodystrophy linked to chromosome 9q34. Nat. Genet. 31: 21-23.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 603100. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: AGPAT2 (human) mapping to 9q34.3.

PRODUCT

LPAAT-β 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 LPAAT-β shRNA Plasmid (h): sc-75688-SH and LPAAT-β shRNA (h) Lentiviral Particles: sc-75688-V as alternate gene silencing products.

For independent verification of LPAAT-β (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-75688A, sc-75688B and sc-75688C.

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

LPAAT-β siRNA (h) is recommended for the inhibition of LPAAT-β 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 LPAAT-β gene expression knockdown using RT-PCR Primer: LPAAT-β (h)-PR: sc-75688-PR (20 µl, 436 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Song, L., Yang, J., Duan, P., Xu, J., Luo, X., Luo, F., Zhang, Z., Hou, T., Liu, B. and Zhou, Q. 2013. MicroRNA-24 inhibits osteosarcoma cell proliferation both *in vitro* and *in vivo* by targeting LPAATβ. Arch. Biochem. Biophys. 535: 128-135.
2. Triantafyllou, E.A., Georgatsou, E., Mylonis, I., Simos, G. and Paraskeva, E. 2018. Expression of AGPAT2, an enzyme involved in the glycerophospholipid/triacylglycerol biosynthesis pathway, is directly regulated by HIF-1 and promotes survival and etoposide resistance of cancer cells under hypoxia. Biochim. Biophys. Acta Mol. Cell Biol. Lipids 1863: 1142-1152.

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.