SANTA CRUZ BIOTECHNOLOGY, INC.

PNPLA1 siRNA (h): sc-61373

BACKGROUND

The Adiponutrin family consists of Adiponutrin (ADPN), adipocyte triglyceride lipase (ATGL, also designated desnutrin), GS1, GS2, GS2-like and patatin-like phospholipase domain containing 1 (PNPLA1). Several members of the Adiponutrin family are implicated in obesity and diabetes. PNPLA1 is a 446 amino acid protein that has been detected along with nine other PNPLAs using bioinformatic approaches. Gene sequencing reveals a conservation of the patatin fold and lipase motif in all human PNPLAs. Several PNPLAs are differentially regulated during cell growth and differentiation. PNPLA1 is usually expressed at very low levels and is induced in response to specific environmental signals. PNPLA1 may function as an integral membrane protein that is regulated by cAMP/cGMP levels.

REFERENCES

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2. Villena, J.A., Roy, S., Sarkadi-Nagy, E., Kim, K.H. and Sul, H.S. 2004. Desnutrin, an adipocyte gene encoding a novel patatin domain-containing protein, is induced by fasting and glucocorticoids: ectopic expression of desnutrin increases triglyceride hydrolysis. J. Biol. Chem. 279: 47066-47075.
3. Kershaw, E.E., Hamm, J.K., Verhagen, L.A., Peroni, O., Katic, M. and Flier, J.S. 2005. Adipose triglyceride lipase: function, regulation by Insulin, and comparison with Adiponutrin. Diabetes 55: 148-157.
4. Lake, A.C., Sun, Y., Li, J.L., Kim, J.E., Johnson, J.W., Li, D., Revett, T., Shih, H.H., Liu, W., Paulsen, J.E. and Gimeno, R.E. 2005. Expression, regulation and triglyceride hydrolase activity of Adiponutrin family members. J. Lipid Res. 46: 2477-2487.
5. Wilson, P.A., Gardner, S.D., Lambie, N.M., Commans, S.A. and Crowther, D.J. 2006. Characterization of the human patatin-like phospholipase family. J. Lipid Res. 47: 1940-1949.

CHROMOSOMAL LOCATION

Genetic locus: PNPLA1 (human) mapping to 6p21.31.

PRODUCT

PNPLA1 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 PNPLA1 shRNA Plasmid (h): sc-61373-SH and PNPLA1 shRNA (h) Lentiviral Particles: sc-61373-V as alternate gene silencing products.

For independent verification of PNPLA1 (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-61373A, sc-61373B and sc-61373C.

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

PNPLA1 siRNA (h) is recommended for the inhibition of PNPLA1 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 PNPLA1 gene expression knockdown using RT-PCR Primer: PNPLA1 (h)-PR: sc-61373-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Onal, G., Kutlu, O., Ozer, E., Gozuacik, D., Karaduman, A. and Dokmeci Emre, S. 2019. Impairment of lipophagy by PNPLA1 mutations causes lipid droplet accumulation in primary fibroblasts of autosomal recessive congenital ichthyosis patients. J. Dermatol. Sci. 93: 50-57.
2. Kim, K.P., Shin, K.O., Lee, S., Yun, J., Lee, T. and Cho, Y. 2024. PNPLA1 knockdown inhibits esterification of γ-linolenic acid to ceramide 1 in differentiated keratinocytes. Biochem. Biophys. Res. Commun. 702: 149618.

RESEARCH USE

For research use only, not for use in diagnostic procedures.