SANTA CRUZ BIOTECHNOLOGY, INC.

iPLA$_2$γ siRNA (h): sc-89772

BACKGROUND

iPLA$_2$γ, also known as PNPLA8 (patatin-like phospholipase domain containing 8) or IPLA22, is a 782 amino acid single-pass membrane protein that localizes to both the Golgi and the endoplasmic reticulum and contains one patatin domain. Expressed as multiple alternatively spliced isoforms, iPLA$_2$γ functions as a calcium-independent phospholipase A$_2$ that cleaves membrane phospholipids and catalyzes the hydrolysis of the sn-2 position of glycerophospholipids. iPLA$_2$γ is present in a variety of tissues, including brain, placenta, heart, liver and pancreas and skeletal muscle, where it exhibits optimal activity at a a pH of 8.0. The gene encoding iPLA$_2$γ maps to human chromosome 7, which houses over 1,000 genes and comprises nearly 5% of the human genome. Defects in some of the genes localized to chromosome 7 have been linked to osteogenesis imperfecta, Williams-Beuren syndrome, pendred syndrome, lissencephaly, citrullinemia and Shwachman-Diamond syndrome.

REFERENCES

1. Chaminade, B., Le Balle, F., Fourcade, O., Nauze, M., Delagebeaudeuf, C., Gassama-Diagne, A., Simon, M.F., Fauvel, J. and Chap, H. 1999. New developments in phospholipase A$_2$. Lipids 34: S49-S55.
2. Tanaka, H., Takeya, R. and Sumimoto, H. 2000. A novel intracellular membrane-bound calcium-independent phospholipase A$_2$. Biochem. Biophys. Res. Commun. 272: 320-326.
3. Mancuso, D.J., Jenkins, C.M. and Gross, R.W. 2000. The genomic organization, complete mRNA sequence, cloning, and expression of a novel human intracellular membrane-associated calcium-independent phospholipase A$_2$. J. Biol. Chem. 275: 9937-9945.
4. Murakami, M., Masuda, S., Ueda-Semmyo, K., Yoda, E., Kuwata, H., Takanezawa, Y., Aoki, J., Arai, H., Sumimoto, H., Ishikawa, Y., Ishii, T., Nakatani, Y. and Kudo, I. 2005. Group VIB Ca^{2+}-independent phospholipase A$_2$γ promotes cellular membrane hydrolysis and prostaglandin production in a manner distinct from other intracellular phospholipases A$_2$. J. Biol. Chem. 280: 14028-14041.
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.
6. Harper, M.T. and Sage, S.O. 2008. Is calcium-independent phospholipase A2 required for store-operated calcium entry in human platelets? J. Thromb. Haemost. 6: 1819-1821.
7. Online Mendelian Inheritance in Man, OMIM™. 2008. Johns Hopkins University, Baltimore, MD. MIM Number: 612123. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: PNPLA8 (human) mapping to 7q31.1.

PROTOCOLS

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

PRODUCT

iPLA$_2$γ 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 iPLA$_2$γ shRNA Plasmid (h): sc-89772-SH and iPLA$_2$γ shRNA (h) Lentiviral Particles: sc-89772-V as alternate gene silencing products.

For independent verification of iPLA$_2$γ (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-89772A, sc-89772B and sc-89772C.

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

iPLA$_2$γ siRNA (h) is recommended for the inhibition of iPLA$_2$γ 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 iPLA$_2$γ gene expression knockdown using RT-PCR Primer: iPLA$_2$γ (h)-PR: sc-89772-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. Pattabiraman, P.P., Lih, F.B., Tomer, K.B. and Rao, P.V. 2012. The role of calcium-independent phospholipase A$_2$γ in modulation of aqueous humor drainage and Ca^{2+} sensitization of trabecular meshwork contraction. Am. J. Physiol., Cell Physiol. 302: C979-C991.

RESEARCH USE

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