

group IB sPLA₂ siRNA (m): sc-145770

BACKGROUND

Phospholipase A₂s (PLA₂s) constitute a family of esterases that hydrolyze the sn-2-acyl ester bond in glycerophospholipid molecules. These enzymes are generally calcium-dependent and have been found both intra- and extracellularly. By hydrolyzing the sn-2 bond in glycerophospholipids, PLA₂s release fatty acids. One such fatty acid, arachidonic acid, generates the substrates for the initiation of the arachidonic acid cascade that produces various eicosanoids, many of which are potent mediators of inflammation. As a member of the PLA₂ family, group IB sPLA₂, also known as PLA2G1B (phospholipase A₂, group IB), is a 148 amino acid secreted protein that is expressed in the pancreas. Group IB sPLA₂ catalyzes the reaction of phosphatidylcholine and water into 1-acylglycerophosphocholine and carboxylate, and may play a role in obesity and insulin resistance.

REFERENCES

- Seilhamer, J.J., Randall, T.L., Yamanaka, M. and Johnson, L.K. 1986. Pancreatic phospholipase A₂: isolation of the human gene and cDNAs from porcine pancreas and human lung. *DNA* 5: 519-527.
- Seilhamer, J.J., Randall, T.L., Johnson, L.K., Heinzmann, C., Klisak, I., Sparkes, R.S. and Lusis, A.J. 1989. Novel gene exon homologous to pancreatic phospholipase A₂: sequence and chromosomal mapping of both human genes. *J. Cell. Biochem.* 39: 327-337.
- Ishizaki, J., Suzuki, N., Higashino, K., Yokota, Y., Ono, T., Kawamoto, K., Fujii, N., Arita, H. and Hanasaki, K. 1999. Cloning and characterization of novel mouse and human secretory phospholipase A₂s. *J. Biol. Chem.* 274: 24973-24979.
- Shakhov, A.N., Rubtsov, A.V., Lyakhov, I.G., Tumanov, A.V. and Nedospasov, S.A. 2000. SPLASH (PLA2IID), a novel member of phospholipase A₂ family, is associated with lymphotoxin deficiency. *Genes Immun.* 1: 191-199.
- Eckey, R., Menschikowski, M., Lattke, P. and Jaross, W. 2004. Increased hepatic cholesterol accumulation in transgenic mice overexpressing human secretory phospholipase A₂ group IIA. *Inflammation* 28: 59-65.
- Takabatake, N., Sata, M., Inoue, S., Shibata, Y., Abe, S., Wada, T., Machiya, J., Ji, G., Matsuura, T., Takeishi, Y., Muramatsu, M. and Kubota, I. 2005. A novel polymorphism in secretory phospholipase A₂-IID is associated with body weight loss in chronic obstructive pulmonary disease. *Am. J. Respir. Crit. Care Med.* 172: 1097-1104.
- Lindbom, J., Ljungman, A.G. and Tagesson, C. 2005. Interferon γ -induced gene expression of the novel secretory phospholipase A₂ type IID in human monocyte-derived macrophages is inhibited by lipopolysaccharide. *Inflammation* 29: 108-117.
- Online Mendelian Inheritance in Man, OMIM[™]. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 172410. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Igarashi, A., Shibata, Y., Yamauchi, K., Osaka, D., Takabatake, N., Abe, S., Inoue, S., Kimura, T., Yamaguchi, Y., Ishizaki, J., Hanasaki, K. and Kubota, I. 2009. Gly80Ser polymorphism of phospholipase A₂-IID is associated with cytokine inducibility in A549 cells. *Respiration* 78: 312-321.

CHROMOSOMAL LOCATION

Genetic locus: Pla2g1b (mouse) mapping to 5 F.

PRODUCT

group IB sPLA₂ 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see group IB sPLA₂ shRNA Plasmid (m): sc-145770-SH and group IB sPLA₂ shRNA (m) Lentiviral Particles: sc-145770-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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

group IB sPLA₂ siRNA (m) is recommended for the inhibition of group IB sPLA₂ 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 μ M in 66 μ l. 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 group IB sPLA₂ gene expression knockdown using RT-PCR Primer: group IB sPLA₂ (m)-PR: sc-145770-PR (20 μ l). 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.

PROTOCOLS

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