SANTA CRUZ BIOTECHNOLOGY, INC.

group III sPLA$_2$ siRNA (m): sc-145773

BACKGROUND

Secreted phospholipase A_2 proteins are calcium-dependent lipolytic enzymes that contain a conserved calcium-binding loop and a histidine-aspartic acid dyad in the catalytic site. Group III sPLA$_2$ (group 3 secretory phospholipase A_2), also designated Phosphatidylcholine 2-acylhydrolase GIII, is a 509 amino acid secreted enzyme that catalyzes the calcium-dependent hydrolysis of 2-acyl groups in 3-sn-phosphoglycerides with an eleven-fold preference of phosphatidylglycerol over phosphatidylcholine. Group III sPLA$_2$ promotes arachidonate and prostaglandin release, an action which is augmented by IL-1β. While amino-terminal glycosylation is not required for its catalytic activity, it is necessary for proper secretion of group III sPLA$_2$. Though highly expressed in liver, kidney, heart and skeletal muscle, it is preferentially expressed in microvascular epithelium with ischemic injury, inflammation, or cancer.

REFERENCES

1. Valentin, E., et al. 2000. Novel human secreted phospholipase A_2 with homology to the group III bee venom enzyme. J. Biol. Chem. 275: 7492-7496.
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3. Murakami, M., et al. 2003. Cellular arachidonate-releasing function of novel classes of secretory phospholipase A_2s (groups III and XII). J. Biol. Chem. 278: 10657-10667.
4. Murakami, M., et al. 2005. Cellular distribution, post-translational modification, and tumorigenic potential of human group III secreted phospholipase A_2. J. Biol. Chem. 280: 24987-24998.
5. Titsworth, W.L., et al. 2007. Focal phospholipases A_2 group III injections induce cervical white matter injury and functional deficits with delayed recovery concomitant with Schwann cell remyelination. Exp. Neurol. 207: 150-162.
6. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611651. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
7. Mounier, C.M., et al. 2008. Distinct expression pattern of the full set of secreted phospholipases A_2 in human colorectal adenocarcinomas: sPLA$_2$-III as a biomarker candidate. Br. J. Cancer 98: 587-595.
8. Sato, H., et al. 2008. Analyses of group III secreted phospholipase A_2 transgenic mice reveal potential participation of this enzyme in plasma lipoprotein modification, macrophage foam cell formation, and atherosclerosis. J. Biol. Chem. 283: 33483-33497.

CHROMOSOMAL LOCATION

Genetic locus: Pla2g3 (mouse) mapping to 11 A1.

PROTOCOLS

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

PRODUCT

group III sPLA$_2$ siRNA (m) 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 group III sPLA$_2$ shRNA Plasmid (m): sc-145773-SH and group III sPLA$_2$ shRNA (m) Lentiviral Particles: sc-145773-V as alternate gene silencing products.

For independent verification of group III sPLA$_2$ (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-145773A, sc-145773B and sc-145773C.

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

group III sPLA$_2$ siRNA (m) is recommended for the inhibition of group III sPLA$_2$ 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 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 group III sPLA$_2$ gene expression knockdown using RT-PCR Primer: group III sPLA$_2$ (m)-PR: sc-145773-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.