

group III sPLA₂ siRNA (h): sc-75201

BACKGROUND

Secreted phospholipase A₂ 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 sPLA₂ (group 3 secretory phospholipase A₂), 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 sPLA₂ promotes arachidonate and prostaglandin release, an action which is augmented by IL-1 β . While amino-terminal glycosylation is not required for its catalytic activity, it is necessary for proper secretion of group III sPLA₂. Though highly expressed in liver, kidney, heart and skeletal muscle, it is preferentially expressed in microvascular epithelium with ischemic injury, inflammation, or cancer.

REFERENCES

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3. Murakami, M., et al. 2003. Cellular arachidonate-releasing function of novel classes of secretory phospholipase A₂s (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 A₂. *J. Biol. Chem.* 280: 24987-24998.
5. Titworth, W.L., et al. 2007. Focal phospholipases A₂ 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 A₂ in human colorectal adenocarcinomas: sPLA₂-III as a biomarker candidate. *Br. J. Cancer* 98: 587-595.
8. Sato, H., et al. 2008. Analyses of group III secreted phospholipase A₂ 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 (human) mapping to 22q12.2.

PROTOCOLS

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

PRODUCT

group III sPLA₂ 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see group III sPLA₂ shRNA Plasmid (h): sc-75201-SH and group III sPLA₂ shRNA (h) Lentiviral Particles: sc-75201-V as alternate gene silencing products.

For independent verification of group III sPLA₂ (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-75201A, sc-75201B and sc-75201C.

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 III sPLA₂ siRNA (h) is recommended for the inhibition of group III sPLA₂ 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 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 III sPLA₂ gene expression knockdown using RT-PCR Primer: group III sPLA₂ (h)-PR: sc-75201-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.