SANTA CRUZ BIOTECHNOLOGY, INC.

group IIE sPLA$_2$ siRNA (m): sc-105418

BACKGROUND

Phospholipase A$_2$s (PLA$_2$s) 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, PLA$_2$s 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 PLA$_2$ family, group IIE sPLA$_2$ (group IIE secretory phospholipase A$_2$), also known as PLA2G2E (phosphatidylcholine 2-acylhydrolase GIIE) and sPLA$_2$-IIE, is a 142 amino acid secreted enzyme that promotes stimulus-induced arachidonic acid release and prostaglandin production, therefore playing a major role in the inflammatory process. Expression of group IIE sPLA$_2$ is restricted to heart, brain, lung and placenta.

REFERENCES

1. Lambeau, G., et al. 1999. Receptors for a growing family of secreted phospholipases A$_2$. Trends Pharmacol. Sci. 20: 162-170.
2. Suzuki, N., et al. 2000. Structures, enzymatic properties, and expression of novel human and mouse secretory phospholipase A$_2$s. J. Biol. Chem. 275: 5785-5793.
3. Murakami, M., et al. 2001. Distinct arachidonate-releasing functions of mammalian secreted phospholipase A$_2$s in human embryonic kidney 293 and rat mastocytoma RBL-2H3 cells through heparan sulfate shuttling and external plasma membrane mechanisms. J. Biol. Chem. 276: 10083-10096.
4. Murakami, M., et al. 2002. Arachidonate release and eicosanoid generation by group IIE phospholipase A$_2$. Biochem. Biophys. Res. Commun. 292: 689-696.
5. Kolko, M., et al. 2006. Characterization and location of secretory phospholipase A$_2$ groups IIE, V, and X in the rat brain. J. Neurosci. Res. 83: 874-882.
6. 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: Pla2g2e (mouse) mapping to 4 D3.

PRODUCT

group IIE 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 IIE sPLA$_2$ shRNA Plasmid (m): sc-105418-SH and group IIE sPLA$_2$ shRNA (m) Lentiviral Particles: sc-105418-V as alternate gene silencing products.

For independent verification of group IIE 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-105418A, sc-105418B and sc-105418C.

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 IIE sPLA$_2$ siRNA (m) is recommended for the inhibition of group IIE 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 IIE sPLA$_2$ gene expression knockdown using RT-PCR Primer: group IIE sPLA$_2$ (m)-PR: sc-105418-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.

PROTOCOLS

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