

LYPLA3 siRNA (h): sc-93270

BACKGROUND

LYPLA3 (lysophospholipase 3) also referred to as ACS, LLPL or LPLA2 (lysosomal phospholipase A₂), is ubiquitously expressed with highest expression in kidney, placenta, pancreas, testis, spleen, heart and skeletal muscle. LYPLA3, which localizes to lysosomes, is calcium-independent and has an acidic pH optimum. LYPLA3 transacylates ceramide and increases lysosomal membrane permeability to both potassium ions and protons. It may play a critical role in pulmonary surfactant phospholipid degradation due to its high specificity towards phosphatidylethanolamine and phosphatidylcholine in alveolar macrophages. LYPLA3 may also enhance lysosome osmotic sensitivity, resulting in the destabilization of the enzyme by causing leakage and inducing apoptosis. LYPLA3 is thought to remodel acyl groups and modulate the biological and pharmacological activities of some lipophilic alcohols.

REFERENCES

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3. Taniyama, Y., et al. 2005. Loss of lysophospholipase 3 increases atherosclerosis in apolipoprotein E-deficient mice. *Biochem. Biophys. Res. Commun.* 330: 104-110.
4. Hiraoka, M., et al. 2005. Structure and function of lysosomal phospholipase A₂: identification of the catalytic triad and the role of cysteine residues. *J. Lipid Res.* 46: 2441-2447.
5. Schaloske, R.H. and Dennis, E.A. 2006. The phospholipase A₂ superfamily and its group numbering system. *Biochim. Biophys. Acta* 1761: 1246-1259.
6. Wang, J.W., et al. 2006. Effects of phospholipase A₂ on the lysosomal ion permeability and osmotic sensitivity. *Chem. Phys. Lipids* 144: 117-126.
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CHROMOSOMAL LOCATION

Genetic locus: PLA2G15 (human) mapping to 16q22.1.

PRODUCT

LYPLA3 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 LYPLA3 shRNA Plasmid (h): sc-93270-SH and LYPLA3 shRNA (h) Lentiviral Particles: sc-93270-V as alternate gene silencing products.

For independent verification of LYPLA3 (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-93270A, sc-93270B and sc-93270C.

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

LYPLA3 siRNA (h) is recommended for the inhibition of LYPLA3 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.

GENE EXPRESSION MONITORING

LYPLA3 (B-2): sc-376078 is recommended as a control antibody for monitoring of LYPLA3 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor LYPLA3 gene expression knockdown using RT-PCR Primer: LYPLA3 (h)-PR: sc-93270-PR (20 μ l, 549 bp). 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.