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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

LPL siRNA (h): sc-44900

BACKGROUND

The lipase gene family belongs to one of the most robust genetic superfamilies found in living organisms, which includes esterases and thioesterases. Lipase gene products are related by tertiary structure rather than primary amino acid sequence. Members of the AB hydrolase subfamily include hepatic lipase (HL), endothelial lipase (EL), lipoprotein lipase (LPL) and pancreatic lipase (PL). HL balances the composition and transport of lipoproteins in human plasma. Synthesized in endothelial cells, EL hydrolyzes high density lipoproteins. LPL, a homodimer attached to the membrane by a GPI-anchor, mediates the hydrolysis of triglycerides of very low density lipoproteins and circulating chylomicrons. Defects in LPL may cause chylomicronemia syndrome or a form of lipoprotein lipase deficiency characterized by hypertriglyceridemia.

REFERENCES

1. Wong, H., et al. 2002. The lipase gene family. *J. Lipid Res.* 43: 993-999.
2. McTernan, P.G., et al. 2002. Insulin and rosiglitazone regulation of lipolysis and lipogenesis in human adipose tissue *in vitro*. *Diabetes* 51: 1493-1498.
3. Ferreira, L.D., et al. 2002. Sciatic nerve lipoprotein lipase is reduced in streptozotocin-induced diabetes and corrected by Insulin. *Endocrinology* 143: 1213-1217.
4. Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 151670. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Tsutsumi, K., et al. 2003. Lipoprotein lipase and atherosclerosis. *Curr. Vasc. Pharmacol.* 1:11-17.

CHROMOSOMAL LOCATION

Genetic locus: LPL (human) mapping to 8p21.3.

PRODUCT

LPL 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 LPL shRNA Plasmid (h): sc-44900-SH and LPL shRNA (h) Lentiviral Particles: sc-44900-V as alternate gene silencing products.

For independent verification of LPL (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-44900A, sc-44900B and sc-44900C.

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

LPL siRNA (h) is recommended for the inhibition of LPL 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

LPL (F-1): sc-373759 is recommended as a control antibody for monitoring of LPL 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 LPL gene expression knockdown using RT-PCR Primer: LPL (h)-PR: sc-44900-PR (20 μ l, 525 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lan, G., et al. 2016. MicroRNA-134 activates lipoprotein lipase-mediated lipid accumulation and inflammatory response by targeting angiotensin-like 4 in THP-1 macrophages. *Biochem. Biophys. Res. Commun.* 472: 410-417.
2. Lee, H.R., et al. 2019. 1-palmitoyl-2-linoleoyl-3-acetyl-rac-glycerol (PLAG) rapidly resolves LPS-induced acute lung injury through the effective control of neutrophil recruitment. *Front. Immunol.* 10: 2177.

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.