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# LPL shRNA (m) Lentiviral Particles: sc-44901-V

## 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.
6. Otarod, J.K., et al. 2004. Lipoprotein lipase and its role in regulation of plasma lipoproteins and cardiac risk. *Curr. Atheroscler. Rep.* 6: 335-342.
7. Zhang, L., et al. 2005. Calcium triggers folding of lipoprotein lipase to active dimers. *J. Biol. Chem.* 280: 42580-42591.
8. LocusLink Report (LocusID: 3990). <http://www.ncbi.nlm.nih.gov/LocusLink/>

## CHROMOSOMAL LOCATION

Genetic locus: *Lpl* (mouse) mapping to 8 B3.3.

## PRODUCT

LPL shRNA (m) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 µl frozen stock containing  $1.0 \times 10^6$  infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see LPL siRNA (m): sc-44901 and LPL shRNA Plasmid (m): sc-44901-SH as alternate gene silencing products.

## STORAGE

Store lentiviral particles at  $-80^\circ\text{C}$ . Stable for at least one year from the date of shipment. Once thawed, particles can be stored at  $4^\circ\text{C}$  for up to one week. Avoid repeated freeze thaw cycles.

## APPLICATIONS

LPL shRNA (m) Lentiviral Particles is recommended for the inhibition of Lipoprotein Lipase expression in mouse cells.

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 µl frozen viral stock containing  $1.0 \times 10^6$  infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

## 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 (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Lipoprotein Lipase gene expression knockdown using RT-PCR Primer: LPL (m)-PR: sc-44901-PR (20 µl). Annealing temperature for the primers should be  $55-60^\circ\text{C}$  and the extension temperature should be  $68-72^\circ\text{C}$ .

## BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

## RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

## PROTOCOLS

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