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# MTP shRNA (m) Lentiviral Particles: sc-45276-V

## BACKGROUND

Microsomal triglyceride transfer protein (MTP) catalyzes the transport of cholesteryl ester, triglyceride and phospholipid between phospholipid surfaces. MTP is a heterodimer consisting of MTP and PDI (protein disulfide isomerase). It is required for the secretion of plasma lipoproteins containing apolipoprotein B. It is negatively regulated by Insulin and positively regulated by cholesterol. MTP, which localizes to the endoplasmic reticulum (ER), is expressed primarily in small intestine, liver, kidney, testis and ovary. It is not expressed in epithelial cells. Defects in the MTP gene can cause abetalipoproteinemia (ABL) which is an autosomal recessive lipoprotein metabolism disorder.

## REFERENCES

- Shoulders, C.C., et al. 1994. The abetalipoproteinemia gene is a member of the vitellogenin family and encodes an  $\alpha$ -helical domain. *Nat. Struct. Biol.* 1: 285-286.
- Hagan, D.L., et al. 1994. Transcriptional regulation of human and hamster microsomal triglyceride transfer protein genes. Cell type-specific expression and response to metabolic regulators. *J. Biol. Chem.* 269: 28737-28744.
- Rehberg, E.F., et al. 1996. A novel abetalipoproteinemia genotype. Identification of a missense mutation in the 97 kDa subunit of the microsomal triglyceride transfer protein that prevents complex formation with protein disulfide isomerase. *J. Biol. Chem.* 271: 29945-29952.
- Ohashi, K., et al. 2000. Novel mutations in the microsomal triglyceride transfer protein gene causing abetalipoproteinemia. *J. Lipid Res.* 41: 1199-1204.
- Wang, J., et al. 2000. Microsomal triglyceride transfer protein (MTP) gene mutations in Canadian subjects with abetalipoproteinemia. *Hum. Mutat.* 15: 294-295.
- Ledmyr, H., et al. 2002. Variants of the microsomal triglyceride transfer protein gene are associated with plasma cholesterol levels and body mass index. *J. Lipid Res.* 43: 51-58.

## CHROMOSOMAL LOCATION

Genetic locus: Mtp (mouse) mapping to 3 G3.

## PRODUCT

MTP shRNA (m) Lentiviral Particles are concentrated, transduction-ready viral particles containing a target-specific construct that encodes a 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200  $\mu$ l frozen stock containing  $1.0 \times 10^9$  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 MTP siRNA (m): sc-45276 and MTP shRNA Plasmid (m): sc-45276-SH as alternate gene silencing products.

## STORAGE

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

## APPLICATIONS

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

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200  $\mu$ l 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

MTP (N-17): sc-33116 is recommended as a control antibody for monitoring of MTP 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 donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MTP gene expression knockdown using RT-PCR Primer: MTP (m)-PR: sc-45276-PR (20  $\mu$ l). Annealing temperature for the primers should be  $55-60^\circ$  C and the extension temperature should be  $68-72^\circ$  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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