SANTA CRUZ BIOTECHNOLOGY, INC.

GPIHBP1 siRNA (m): sc-145686

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The Power to Question

BACKGROUND

Chylomicrons are large lipoprotein particles that consist of triglycerides, phospholipids, cholesterol and proteins. Chylomicrons transport dietary lipids from the intestines to other locations in the body. The triglycerides in chylomicrons are hydrolyzed by lipoprotein lipase (LPL) along the luminal surface of capillaries, mainly in heart, skeletal muscle and adipose tissue. GPIHBP1 (glycosylphosphatidylinositol anchored high density lipoprotein binding protein 1) is a capillary endothelial cell protein that provides a platform for LPL-mediated processing of chylomicrons. Consisting of 184 amino acids, GPIHBP1 is a single-pass membrane protein that may be regulated by dietary factors and by PPARγ. Mutations in the gene encoding GPIHBP1 are linked to chylomicronemia syndrome, a rare genetic disorder caused by LPL deficiency and is characterized by enlarged liver and spleen, inflammation of the pancreas, fatty deposits under the skin and possibly deposits in the retina of the eye.

REFERENCES

1. Gin, P., et al. 2007. Normal binding of lipoprotein lipase, chylomicrons, and apo-AV to GPIHBP1 containing a G56R amino acid substitution. Biochim. Biophys. Acta 1771: 1464-1468.
2. Veniant, M.M., et al. 2008. Lipoprotein size and susceptibility to atherosclerosis—insights from genetically modified mouse models. Curr. Drug Targets 9: 174-189.
3. Gin, P., et al. 2008. The acidic domain of GPIHBP1 is important for the binding of lipoprotein lipase and chylomicrons. J. Biol. Chem. 283: 29554-29562.
4. Beigneux, A.P., et al. 2008. Glycosylation of Asn-76 in mouse GPIHBP1 is critical for its appearance on the cell surface and the binding of chylomicrons and lipoprotein lipase. J. Lipid Res. 49: 1312-1321.
5. Davies, B.S., et al. 2008. The expression of GPIHBP1, an endothelial cell binding site for lipoprotein lipase and chylomicrons, is induced by peroxisome proliferator-activated receptor-γ. Mol. Endocrinol. 22: 2496-2504.
6. Beigneux, A.P., et al. 2009. GPIHBP1 and lipolysis: an update. Curr. Opin. Lipidol. 20: 211-216.
7. Beigneux, A.P., et al. 2009. GPIHBP1, a GPI-anchored protein required for the lipolytic processing of triglyceride-rich lipoproteins. J. Lipid Res. 50: S57-S62.
8. Olivecrona, G., et al. 2009. Mutation of conserved cysteines in the Ly6 domain of GPIHBP1 in familial chylomicronemia. J. Lipid Res. 51: 1535-1545.
9. Franssen, R., et al. 2010. Chylomicronemia with low postheparin lipoprotein lipase levels in the setting of GPIHBP1 defects. Circ. Cardiovasc. Genet. 3: 169-178.

CHROMOSOMAL LOCATION

Genetic locus: Gpihbp1 (mouse) mapping to 15 D3.

PROTOCOLS

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

PRODUCT

GPIHBP1 siRNA (m) is a pool of 2 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 GPIHBP1 shRNA Plasmid (m): sc-145686-SH and GPIHBP1 shRNA (m) Lentiviral Particles: sc-145686-V as alternate gene silencing products.

For independent verification of GPIHBP1 (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-145686A and sc-145686B.

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

GPIHBP1 siRNA (m) is recommended for the inhibition of GPIHBP1 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 GPIHBP1 gene expression knockdown using RT-PCR Primer: GPIHBP1 (m)-PR: sc-145686-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. 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.