

MGAT3 siRNA (h): sc-44469

BACKGROUND

Monoacylglycerol O-acyltransferase (MGAT) catalyzes diacylglycerol (a precursor to triacylglycerol) synthesis. MGAT is important in intestinal absorption of dietary fat because resynthesis of triacylglycerol is needed for the assembly of the lipoproteins that transport absorbed fat to tissues. MGAT1 is expressed in stomach, kidney, liver and adipose tissue but is not found in the intestine. On the contrary, MGAT2 (monoacylglycerol O-acyltransferase 2) is highly expressed in the small intestine as well as in kidney, liver, colon, stomach and white adipose tissue. MGAT3 (monoacylglycerol O-acyltransferase 3) is highly homologous to MGAT1 and MGAT2. The expression of MGAT3 is restricted to the gastrointestinal tract, most concentrated in the ileum.

REFERENCES

1. Bhat, B.G., et al. 1993. Solubilization and partial purification of neonatally expressed rat hepatic microsomal monoacylglycerol acyltransferase. *Arch. Biochem. Biophys.* 300: 663-669.
2. Lehner, R., et al. 1993. Stereospecificity of monoacylglycerol and diacylglycerol acyltransferases from rat intestine as determined by chiral phase high-performance liquid chromatography. *Lipids* 28: 29-34.
3. Cases, S., et al. 2001. Cloning of DGAT2, a second mammalian diacylglycerol acyltransferase, and related family members. *J. Biol. Chem.* 276: 38870-38876.
4. Yen, C.L., et al. 2002. Identification of a gene encoding MGAT1, a monoacylglycerol acyltransferase. *Proc. Natl. Acad. Sci. USA* 99: 8512-8517.
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6. Cheng, D., et al. 2003. Identification of acyl coenzyme A: monoacylglycerol acyltransferase 3, an intestinal specific enzyme implicated in dietary fat absorption. *J. Biol. Chem.* 278: 13611-13614.
7. Yen, C.L. and Farese, R.V. 2003. MGAT2, a monoacylglycerol acyltransferase expressed in the small intestine. *J. Biol. Chem.* 278: 18532-18537.

CHROMOSOMAL LOCATION

Genetic locus: MOGAT3 (human) mapping to 7q22.1.

PRODUCT

MGAT3 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 MGAT3 shRNA Plasmid (h): sc-44469-SH and MGAT3 shRNA (h) Lentiviral Particles: sc-44469-V as alternate gene silencing products.

For independent verification of MGAT3 (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-44469A, sc-44469B and sc-44469C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

MGAT3 siRNA (h) is recommended for the inhibition of MGAT3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MGAT2 gene expression knockdown using RT-PCR Primer: MGAT2 (h)-PR: sc-44468-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Guo, R., et al. 2013. Glycogenes mediate the invasive properties and chemosensitivity of human hepatocarcinoma cells. *Int. J. Biochem. Cell Biol.* 45: 347-358.

PROTOCOLS

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