

DGAT1 (G-6): sc-271935

BACKGROUND

Glucose and Insulin are anabolic signals which upregulate the transcriptions of a series of lipogenic enzymes to convert excess carbohydrate into triglycerides for efficient energy storage. Acyl-coenzyme A:diacylglycerol acyltransferase, also known as DGAT1 and ARGPI, is a microsomal enzyme that assists in the synthesis of fatty acids into triglycerides. DGAT catalyzes the terminal and only committed step in triacylglycerol synthesis by using diacylglycerol (DAG) and fatty acyl-CoA as substrates. DGAT plays a fundamental role in the metabolism of cellular diacylglycerol and is important in higher eukaryotes for physiologic processes involving triacylglycerol metabolism such as intestinal fat absorption, lipoprotein assembly, adipose tissue formation and lactation. DGAT1 is involved in fat absorption in the intestine and in basal level triglyceride synthesis in adipose tissue, where it is more highly expressed. Mice lacking DGAT1 have increased energy expenditure and therefore are resistant to obesity. In addition, mice lacking both copies of DGAT1 are completely devoid of milk secretion, most likely because of deficient triglyceride synthesis in the mammary gland.

REFERENCES

1. Cases, S., et al. 1998. Identification of a gene encoding an acyl CoA: diacylglycerol acyltransferase, a key enzyme in triacylglycerol synthesis. *Proc. Natl. Acad. Sci. USA* 95: 13018-13023.
2. Meegalla, R.L., et al. 2002. Concerted elevation of acyl-coenzyme A: diacylglycerol acyltransferase (DGAT) activity through independent stimulation of mRNA expression of DGAT1 and DGAT2 by carbohydrate and Insulin. *Biochem. Biophys. Res. Commun.* 298: 317-323.
3. Winter, A., et al. 2002. Association of a lysine-232/alanine polymorphism in a bovine gene encoding acyl-CoA: diacylglycerol acyltransferase (DGAT1) with variation at a quantitative trait locus for milk fat content. *Proc. Natl. Acad. Sci. USA* 99: 9300-9305.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604900. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Chen, H.C., et al. 2003. Analysis of energy expenditure at different ambient temperatures in mice lacking DGAT1. *Am. J. Physiol. Endocrinol. Metab.* 284: E213-E218.

CHROMOSOMAL LOCATION

Genetic locus: DGAT1 (human) mapping to 8q24.3.

SOURCE

DGAT1 (G-6) is a mouse monoclonal antibody raised against amino acids 1-100 mapping at the N-terminus of DGAT1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

DGAT1 (G-6) is recommended for detection of DGAT1 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for DGAT1 siRNA (h): sc-40487, DGAT1 shRNA Plasmid (h): sc-40487-SH and DGAT1 shRNA (h) Lentiviral Particles: sc-40487-V.

Molecular Weight of DGAT1: 55 kDa.

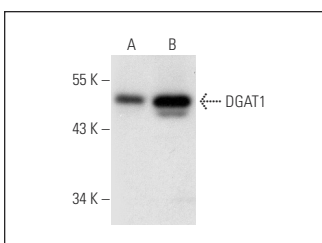
Positive Controls: Jurkat whole cell lysate: sc-2204, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

RECOMMENDED SUPPORT REAGENTS

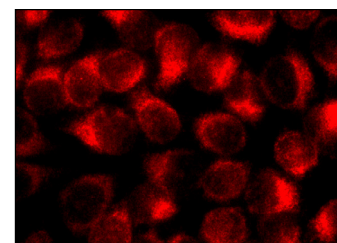
To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



DGAT1 (G-6): sc-271935. Western blot analysis of DGAT1 expression in HeLa (A) and Hep G2 (B) whole cell lysates.



DGAT1 (G-6): sc-271935. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

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