SANTA CRUZ BIOTECHNOLOGY, INC.

DGAT1 (h2): 293T Lysate: sc-171964

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 ARGP1, is a microsomal enzyme that assists in the synthesis of fatty acids into triglycerides. DGAT1 catalyzes the terminal and only committed step in triacylglycerol synthesis by using diacylglycerol (DAG) and fatty acyl CoA as substrates. DGAT1 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: E213-218.

CHROMOSOMAL LOCATION

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

PRODUCT

DGAT1 (h2): 293T Lysate represents a lysate of human DGAT1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

APPLICATIONS

DGAT1 (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive DGAT1 antibodies.

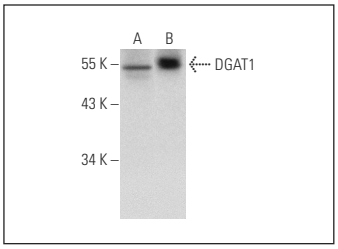
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

DGAT1 (A-5): sc-271934 is recommended as a positive control antibody for Western Blot analysis of enhanced human DGAT1 expression in DGAT1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

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.

DATA



DGAT1 (A-5): sc-271934. Western blot analysis of DGAT1 expression in non-transfected: sc-117752 (**A**) and human DGAT1 transfected: sc-171964 (**B**) 293T whole cell lysates.

PROTOCOLS

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