SANTA CRUZ BIOTECHNOLOGY, INC.

DGAT1 (A-5): sc-271934

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 synthesid 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. 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.

CHROMOSOMAL LOCATION

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

SOURCE

DGAT1 (A-5) 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_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DGAT1 (A-5) is available conjugated to agarose (sc-271934 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271934 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271934 PE), fluorescein (sc-271934 FITC), Alexa Fluor® 488 (sc-271934 AF488), Alexa Fluor® 546 (sc-271934 AF546), Alexa Fluor® 594 (sc-271934 AF594) or Alexa Fluor® 647 (sc-271934 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271934 AF680) or Alexa Fluor® 790 sc-271934 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

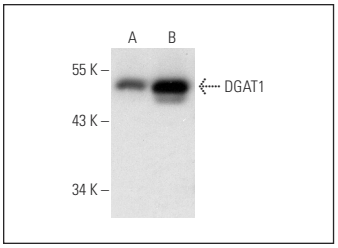
DGAT1 (A-5) is recommended for detection of DGAT1 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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.

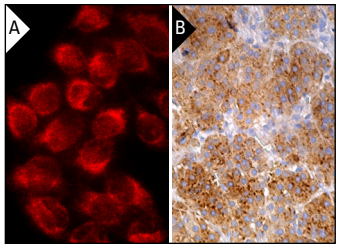
Molecular Weight of DGAT1: 55 kDa.

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

DATA



DGAT1 (A-5): sc-271934. Western blot analysis of DGAT1 expression in HeLa (**A**) and Hep G2 (**B**) whole cell lysates.



DGAT1 (A-5): sc-271934. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Sung, P.S., et al. 2014. Hepatitis C virus entry is impaired by claudin-1 downregulation in diacylglycerol acyltransferase-1-deficient cells. J. Virol. 88: 9233-9244.
2. Bai, J., et al. 2017. Formaldehyde alters triglyceride synthesis and very low-density lipoprotein secretion in a time-dependent manner. Environ. Toxicol. Pharmacol. 56: 15-20.
3. Fan, Y., et al. 2018. Resveratrol induces autophagy-dependent apoptosis in HL-60 cells. BMC Cancer 18: 581.
4. Roe, N.D., et al. 2018. The role of diacylglycerol acyltransferase (DGAT) 1 and 2 in cardiac metabolism and function. Sci. Rep. 8: 4983.
5. Yang, C., et al. 2019. Rewiring neuronal glycerolipid metabolism determines the extent of axon regeneration. Neuron 105: 276.e5-292.e5.
6. Zhang, L., et al. 2020. GLP-1 receptor agonist liraglutide protects cardiomyocytes from IL-1β-induced metabolic disturbance and mitochondrial dysfunction. Chem. Biol. Interact. E-published.

RESEARCH USE

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