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.

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.

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.

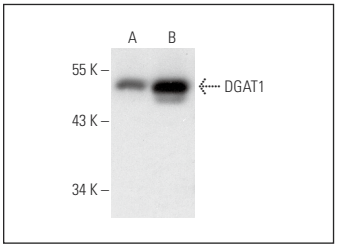
Molecular Weight of DGAT1: 55 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

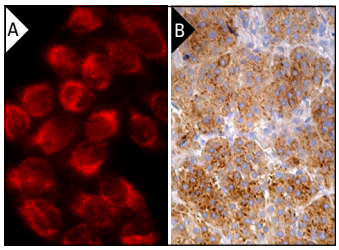
STORAGE

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

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. Dias, S.D.S.G., et al. 2020. Lipid droplets fuel SARS-CoV-2 replication and production of inflammatory mediators. PLoS Pathog. 16: e1009127.
5. de la Rosa Rodriguez, M.A., et al. 2021. Hypoxia-inducible lipid droplet-associated induces DGAT1 and promotes lipid storage in hepatocytes. Mol. Metab. 47: 101168.
6. Park, D., et al. 2021. Tetraspanin TM4SF5 in hepatocytes negatively modulates SLC27A transporters during acute fatty acid supply. Arch. Biochem. Biophys. 710: 109004.
7. Lee, H., et al. 2022. Crosstalk between TM4SF5 and GLUT8 regulates fructose metabolism in hepatic steatosis. Mol. Metab. 58: 101451.
8. Gnoni, A., et al. 2022. Quercetin reduces lipid accumulation in a cell model of NAFLD by inhibiting *de novo* fatty acid synthesis through the acetyl-CoA carboxylase 1/AMPK/PP2A axis. Int. J. Mol. Sci. 23: 1044.
9. Liu, C.H., et al. 2023. CircRNA-PI4KB induces hepatic lipid deposition in non-alcoholic fatty liver disease by transporting miRNA-122 to extra-hepatocytes. Int. J. Mol. Sci. 24: 1297.

RESEARCH USE

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