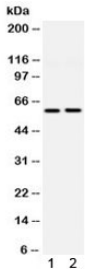
DGAT1 Antibody / Diacylglycerol acyltransferase (R31838)

Catalog No.	Formulation	Size
R31838	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide
UniProt	O75907
Applications	Western blot: 0.1-0.5ug/ml
Limitations	This DGAT antibody is available for research use only.



DGAT1 Antibody Rat Kidney and HeLa WB. Western blot analysis of DGAT1 expression was performed using anti-DGAT1 antibody in rat kidney and human HeLa lysates. DGAT1, also known as Diacylglycerol O-Acyltransferase 1, catalyzes the final step of triglyceride synthesis and plays a key role in lipid droplet formation and energy homeostasis. Lane 1: rat kidney lysate. Lane 2: human HeLa lysate. A specific immunoreactive band is detected at approximately 45-55 kDa in both samples, corresponding to the predicted molecular weight of DGAT1 (~55 kDa). Similar expression in renal and epithelial cell lysates is consistent with the widespread requirement for triglyceride biosynthesis and cellular lipid storage. These results support the utility of DGAT1 Antibody for studies of lipid metabolism, energy homeostasis, and metabolic disease.

Description

DGAT1 Antibody recognizes diacylglycerol O-acyltransferase 1 (DGAT1), an endoplasmic reticulum-associated enzyme that catalyzes the final and committed step in triacylglycerol synthesis. By transferring fatty acyl groups from acyl-CoA to diacylglycerol, DGAT1 generates triglycerides that are packaged into lipid droplets and serve as a major reservoir of stored energy. DGAT1 belongs to the membrane-bound O-acyltransferase family and is highly expressed in tissues

involved in nutrient absorption and lipid handling, including intestine, liver, adipose tissue, mammary gland, and skin. Its activity is essential for maintaining lipid homeostasis and adapting to changes in energy demand.

Unlike many enzymes involved in fatty acid metabolism, DGAT1 acts at the convergence point of multiple lipid synthesis pathways and directly controls triglyceride production. In enterocytes, DGAT1 facilitates the re-esterification of dietary fatty acids and contributes to chylomicron assembly. In adipocytes and hepatocytes, it promotes lipid droplet formation and protects cells from the toxic effects of excess free fatty acids. DGAT1-mediated sequestration of fatty acids into neutral lipids is an important mechanism for preserving membrane integrity and preventing lipotoxic stress.

Studies in animal models have demonstrated that altered DGAT1 activity influences body weight, insulin sensitivity, and energy expenditure. Mice lacking DGAT1 exhibit reduced adiposity and increased insulin responsiveness, underscoring the enzyme's role in systemic metabolism. In addition, DGAT1 contributes to lactation by supporting milk fat production and is required for normal skin barrier function. These diverse physiologic functions highlight the importance of DGAT1 beyond simple energy storage.

Recent investigations have revealed that DGAT1-dependent lipid droplet biogenesis also affects cellular stress responses, autophagy, and inflammatory signaling. Tumor cells and activated immune cells frequently exploit lipid storage pathways to support survival and adaptation to metabolic stress. Consequently, abnormal DGAT1 expression has been associated with obesity, type 2 diabetes, nonalcoholic fatty liver disease, chronic inflammation, and several malignancies characterized by altered lipid metabolism.

Because of its central role in triglyceride biosynthesis and energy balance, DGAT1 has emerged as an attractive therapeutic target. Selective inhibitors of DGAT1 have been investigated for the treatment of obesity, diabetes, and dyslipidemia, although challenges related to gastrointestinal side effects have limited clinical application. Nevertheless, DGAT1 remains an important target for understanding the molecular mechanisms that govern lipid storage and metabolic homeostasis.

DGAT1 Antibody is a valuable tool for studies of lipid metabolism, triglyceride biosynthesis, lipid droplet biology, and metabolic disease. It is widely used in investigations of obesity, fatty liver disease, diabetes, cancer metabolism, and cellular responses to nutrient excess and metabolic stress.

Explore our DGAT1 Antibody / Triglyceride Synthesis Enzyme Antibody for additional information on this key regulator of triglyceride synthesis, lipid droplet formation, and metabolic homeostasis.

Application Notes

Optimal dilution of the DGAT antibody should be determined by the researcher.

Immunogen

Amino acids RRILEMLFFTQLQVGLIQQWMVPTIQNSMKPFKDMDYSR of human DGAT1 were used as the immunogen for the DGAT antibody.

Storage

After reconstitution, the DGAT antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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