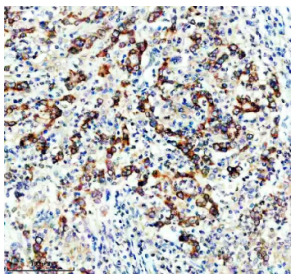
DGAT1 Antibody / Triglyceride Synthesis Enzyme Antibody [clone 23D11] (RQ8914)

Catalog No.	Formulation	Size
RQ8914	Antibody in PBS with 0.02% sodium azide, 50% glycerol and 0.4-0.5mg/ml BSA	100 ul

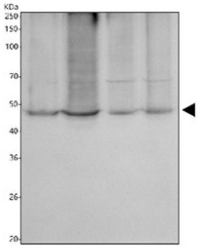
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 days
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	23D11
Purity	Affinity chromatography
UniProt	O75907
Localization	Cytoplasm (ER)
Applications	Western Blot : 1:500 Immunohistochemistry (FFPE) : 1:50
Limitations	This DGAT1 Antibody / Triglyceride Synthesis Enzyme Antibody is available for research use only.



DGAT1 Antibody Human Stomach Cancer IHC. IHC staining of FFPE human stomach cancer tissue with DGAT1 antibody revealed strong cytoplasmic and membranous staining in malignant epithelial cells, consistent with the role of DGAT1 (Diacylglycerol O-Acyltransferase 1) in triglyceride synthesis and lipid droplet formation. DGAT1 is a key regulator of neutral lipid metabolism and has been implicated in metabolic adaptation and tumor cell survival. The widespread staining pattern observed in tumor cells is consistent with increased lipid biosynthesis and energy storage requirements associated with cancer progression. Staining was performed using an HRP-conjugated secondary antibody and DAB chromogen. Heat-induced epitope retrieval was achieved by boiling tissue sections in pH 8 EDTA buffer for 20 minutes followed by cooling before immunostaining.



DGAT1 Antibody Human Cell Lysates WB. Western blot analysis of DGAT1 expression was performed using anti-DGAT1 antibody in lysates from HeLa, PC-3, HepG2, and Caco-2 cells. DGAT1, also known as Diacylglycerol O-Acyltransferase 1, catalyzes the final step of triglyceride synthesis and plays a critical role in lipid storage and energy homeostasis. A specific immunoreactive band is detected at approximately 45-55 kDa in all four cell lines, consistent with the predicted molecular weight of DGAT1 (~55 kDa). Similar expression across cervical, prostate, liver, and intestinal cell lines reflects the widespread requirement for triglyceride biosynthesis and lipid droplet formation in diverse cell types. These results support the utility of DGAT1 Antibody for studies of lipid metabolism, energy homeostasis, and metabolic disease.

Description

DGAT1 Antibody / Triglyceride Synthesis Enzyme Antibody recognizes diacylglycerol O-acyltransferase 1 (DGAT1), a membrane-associated enzyme that catalyzes the final and committed step in triglyceride synthesis. DGAT1 transfers fatty acyl groups from acyl-CoA to diacylglycerol, generating triacylglycerols that are stored in lipid droplets and serve as major reservoirs of metabolic energy. As a member of the membrane-bound O-acyltransferase family, DGAT1 is highly expressed in tissues involved in dietary lipid handling and energy storage, including the small intestine, adipose tissue, liver, skin, and mammary gland. This recombinant rabbit monoclonal antibody (clone 23D11) enables sensitive and specific detection of DGAT1 in multiple applications.

Triglycerides are the principal storage form of fatty acids in vertebrates, and DGAT1 plays a central role in maintaining lipid homeostasis. By converting excess fatty acids into neutral triglycerides, DGAT1 helps protect cells from lipotoxicity and oxidative stress. Lipid droplets generated by DGAT1 activity function not only as energy depots but also as dynamic organelles involved in membrane biosynthesis, protein trafficking, and cellular signaling. Through these mechanisms, DGAT1 contributes to cellular adaptation during nutrient excess, fasting, and metabolic stress.

DGAT1 is particularly important for intestinal absorption of dietary fats. Enterocytes rely on DGAT1 activity to re-esterify fatty acids and monoacylglycerols into triglycerides that are incorporated into chylomicrons and transported throughout the body. In adipose tissue, DGAT1 facilitates long-term energy storage, while in mammary glands it participates in milk fat synthesis. Studies in knockout mice have demonstrated that loss of DGAT1 activity alters adiposity, enhances insulin sensitivity, and affects energy expenditure, highlighting its critical role in whole-body metabolism.

Beyond normal physiology, DGAT1 has attracted considerable interest in metabolic disease research. Altered expression or activity of DGAT1 has been linked to obesity, type 2 diabetes, dyslipidemia, and nonalcoholic fatty liver disease. Excessive triglyceride accumulation in hepatocytes contributes to hepatic steatosis, while dysregulated lipid metabolism is increasingly recognized as a driver of inflammation and insulin resistance. Consequently, selective DGAT1 inhibitors have been explored as therapeutic approaches for obesity and related metabolic disorders. Although clinical development has been complicated by gastrointestinal side effects, DGAT1 remains an important target for understanding metabolic homeostasis.

Recent evidence suggests that DGAT1 also influences cancer biology and immune responses. Tumor cells frequently rely on altered lipid metabolism to support rapid growth, and DGAT1-mediated lipid droplet formation may protect malignant cells from oxidative damage and nutrient deprivation. In immune cells, triglyceride metabolism affects inflammatory signaling and macrophage function, implicating DGAT1 in chronic inflammatory diseases. These emerging roles have expanded interest in DGAT1 beyond classical metabolism research.

DGAT1 expression and lipid droplet biogenesis are closely connected to pathways regulating fatty acid synthesis, ÃŽÂ²-oxidation, endoplasmic reticulum stress, and nutrient sensing. Crosstalk with SREBP, PPAR, and AMPK signaling pathways allows DGAT1 to integrate metabolic cues and maintain cellular energy balance. Because disturbances in these networks contribute to numerous human diseases, DGAT1 serves as an important biomarker and therapeutic target in studies of obesity, diabetes, fatty liver disease, inflammation, and cancer.

DGAT1 Antibody / Triglyceride Synthesis Enzyme Antibody is ideal for investigating lipid metabolism, triglyceride biosynthesis, lipid droplet biology, metabolic disorders, and energy homeostasis. This recombinant rabbit monoclonal antibody (clone 23D11) provides a valuable tool for characterizing DGAT1 expression and localization in normal tissues and disease models.

Learn more about antibodies involved in lipid metabolism, energy homeostasis, and metabolic disease in our Metabolism Antibodies category.

Application Notes

Optimal dilution of the DGAT1 Antibody / Triglyceride Synthesis Enzyme Antibody should be determined by the researcher.

Immunogen

A peptide sequence specific to Diacylglycerol O-acyltransferase 1 protein was used as the immunogen for the DGAT1 antibody.

Storage

After reconstitution, the DGAT1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

DGAT1 antibody, Diacylglycerol O-Acyltransferase 1 antibody, Acyl-CoA:Diacylglycerol Acyltransferase 1 antibody, Triglyceride Synthesis Enzyme antibody, Triacylglycerol Biosynthesis Enzyme antibody, Neutral Lipid Biosynthesis Enzyme antibody