ACACA Antibody / Acetyl CoA Carboxylase 1 [clone 32A06] (FY13292)

Catalog No.	Formulation	Size
FY13292	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	2-3 weeks
Species Reactivity	Human
Format	Liquid
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	32A06
Purity	Affinity chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	Q13085
Applications	Western blot: 1:500-1:2000 Immunohistochemistry: 1:50-1:200 Immunocytochemistry/Immunofluorescence: 1:50-1:200
Limitations	This ACACA antibody is available for research use only.

Description

ACACA antibody detects Acetyl CoA carboxylase 1, encoded by the ACACA gene. Acetyl CoA carboxylase 1 is a biotin dependent enzyme that catalyzes the conversion of acetyl CoA to malonyl CoA, the rate limiting step of fatty acid biosynthesis. ACACA antibody provides researchers with a specific reagent to study lipid metabolism, metabolic disease, and cancer biology.

Acetyl CoA carboxylase 1 functions by adding a carboxyl group to acetyl CoA, producing malonyl CoA, which serves as the building block for fatty acid elongation. Research using ACACA antibody has demonstrated that this enzyme is highly expressed in lipogenic tissues such as liver and adipose tissue. By controlling malonyl CoA levels, Acetyl CoA carboxylase 1 regulates lipid synthesis and contributes to energy balance.

Studies with ACACA antibody have revealed that Acetyl CoA carboxylase 1 is subject to complex regulation. It is activated by citrate, which reflects nutrient abundance, and inhibited by phosphorylation through AMP activated protein kinase under energy stress conditions. This ensures that fatty acid synthesis occurs only when energy is sufficient. Hormones such as insulin also stimulate Acetyl CoA carboxylase 1 activity, further linking the enzyme to metabolic signaling pathways.

Dysregulation of Acetyl CoA carboxylase 1 has been associated with obesity, diabetes, and cancer. Research using ACACA antibody has shown that elevated activity promotes lipid accumulation and insulin resistance, while inhibition of the enzyme improves metabolic outcomes in animal models. In cancer, increased Acetyl CoA carboxylase 1 expression supports tumor growth by fueling lipid synthesis required for membrane production and signaling. These findings highlight its therapeutic potential in both metabolic and oncologic diseases.

ACACA antibody is widely used in western blotting, immunohistochemistry, and immunofluorescence. Western blotting detects full length protein and phosphorylated forms, immunohistochemistry demonstrates tissue distribution in metabolic organs, and immunofluorescence shows cytoplasmic localization associated with lipid droplets. These applications make ACACA antibody indispensable for metabolic research.

By supplying validated ACACA antibody reagents, NSJ Bioreagents supports studies into lipid metabolism, metabolic disease, and cancer biology. Detection of Acetyl CoA carboxylase 1 provides insight into how lipid synthesis contributes to physiology and pathology.

Application Notes

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

Immunogen

A synthesized peptide derived from human Acetyl Coenzyme A Carboxylase was used as the immunogen for the ACACA antibody.

Storage

Store the ACACA antibody at -20oC.

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