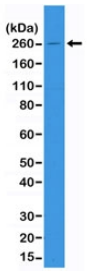
Recombinant ACC Antibody / Acetyl-CoA Carboxylase [clone RM232] (R20259)

Catalog No.	Formulation	Size
R20259-0.1ML	Antibody in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ul

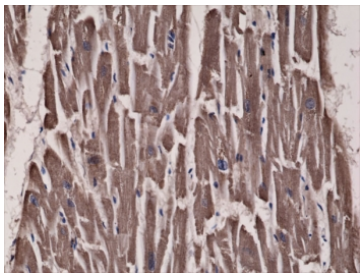
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Predicted Reactivity	Mouse, Rat
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM232
Purity	Protein A purified from animal origin-free supernatant
UniProt	Q13085
Localization	Cytoplasmic
Applications	Immunohistochemistry (FFPE) : 1:300-1:500 (1) Western Blot : 1:1000-1:2000
Limitations	This recombinant ACC antibody is available for research use only.



Western blot of A431 cell lysate using recombinant ACC antibody at 1:1000. Observed molecular weight ~260 kDa.



IHC testing of FFPE human heart tissue with recombinant ACC antibody.

Description

The Recombinant ACC antibody is a recombinant reagent engineered to detect acetyl-CoA carboxylase (ACC), also known as ACACA, a biotin-dependent enzyme that catalyzes the carboxylation of acetyl-CoA to form malonyl-CoA. This reaction represents the committed and rate-limiting step in fatty acid biosynthesis, making ACC a central regulator of lipid metabolism. In mammals, two isoforms exist: ACC1 (encoded by ACACA), primarily localized in the cytosol of lipogenic tissues, and ACC2 (encoded by ACACB), associated with mitochondria in oxidative tissues. The Recombinant ACC antibody detects ACC1/ACACA, providing a critical tool for studying metabolic regulation and energy homeostasis.

Structurally, ACC is a large multifunctional enzyme organized into distinct domains: the biotin carboxylase domain, the biotin carboxyl carrier protein domain, and the carboxyltransferase domain. These catalytic modules cooperate to transfer a carboxyl group from bicarbonate to acetyl-CoA, generating malonyl-CoA. Malonyl-CoA not only serves as the two-carbon donor for fatty acid elongation but also regulates fatty acid oxidation by inhibiting carnitine palmitoyltransferase 1 (CPT1), the rate-limiting enzyme in mitochondrial fatty acid import. By controlling this balance, ACC integrates signals from nutritional status, hormones, and energy demands.

In research, the Recombinant ACC antibody is widely applied to investigate lipid metabolism, obesity, diabetes, and cancer. In western blotting, it reliably detects ACC expression levels and can distinguish changes in phosphorylation status that regulate enzyme activity. Phosphorylation by AMP-activated protein kinase (AMPK) inactivates ACC, linking it to energy-sensing pathways and making ACC a key node in metabolic regulation. In immunofluorescence, the antibody reveals cytoplasmic localization in lipogenic cells, while in immunohistochemistry it highlights ACC abundance in tissues such as liver, adipose, and mammary gland.

The Recombinant ACC antibody is also valuable in drug discovery, where ACC inhibitors are being developed as potential therapies for metabolic syndrome, non-alcoholic fatty liver disease, and cancer. ACC overexpression or dysregulation is frequently associated with tumor growth, as enhanced fatty acid synthesis provides both energy and biosynthetic precursors for rapidly dividing cells. Synonym terms such as recombinant acetyl-CoA carboxylase antibody, recombinant ACACA antibody, and recombinant ACC1 antibody improve product accessibility for diverse users.

By providing validated and reproducible detection, the Recombinant ACC antibody supports studies of lipid metabolism and therapeutic development. NSJ Bioreagents validates this reagent under stringent quality standards, giving researchers confidence in applications including western blotting, immunofluorescence, and immunohistochemistry. With its specificity for ACACA, the Recombinant ACC antibody is an essential tool for advancing metabolic and cancer research.

This recombinant ACC antibody reacts to human Acetyl CoA Carboxylase 1. It may also react with the mouse and rat protein, as predicted by immunogen homology.

Application Notes

The stated application concentrations are suggested starting points. Titration of the recombinant ACC antibody may be required due to differences in protocols and secondary/substrate sensitivity.

1. A pH6 Citrate buffer or pH9 Tris/EDTA buffer HIER step is recommended for testing of FFPE tissue sections.

Immunogen

A peptide corresponding to human Acetyl CoA Carboxylase 1 was used as the immunogen for this recombinant ACC antibody.

Storage

Store the recombinant ACC antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).