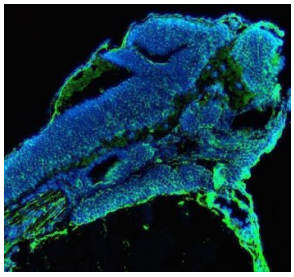
Zebrafish ACACA Antibody / Acetyl-CoA Carboxylase 1 Antibody (RZ1336)

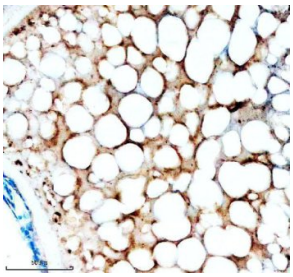
Catalog No.	Formulation	Size
RZ1336	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

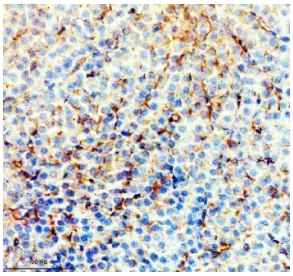
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Buffer	Lyophilized from a buffered saline solution containing 2% trehalose. Reconstitute with 0.2 mL distilled water to yield a final antibody concentration of 500 ug/mL.
UniProt	A0A8M6YZ52
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml Immunofluorescence : 5ug/ml
Limitations	This Zebrafish ACACA Antibody / Acetyl-CoA Carboxylase 1 Antibody is available for research use only.



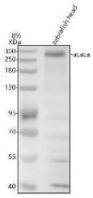
Zebrafish ACACA / Acetyl-CoA Carboxylase 1 Antibody Embryo IF. Immunofluorescent staining of FFPE zebrafish embryo tissue using Zebrafish ACACA Antibody demonstrates distinct green fluorescence throughout developing embryonic tissue compartments against a blue DAPI nuclear counterstain background. The staining pattern is consistent with expression of Acetyl-CoA Carboxylase 1 (ACACA), also known as ACC1, a rate-limiting enzyme in de novo fatty acid biosynthesis that catalyzes the conversion of acetyl-CoA to malonyl-CoA. Signal is observed within embryonic structures undergoing active growth and metabolic development, reflecting the essential role of ACACA in lipid synthesis, membrane biogenesis, and cellular energy homeostasis during vertebrate embryogenesis. Heat mediated antigen retrieval was performed in EDTA buffer. Primary antibody was incubated overnight at 4oC followed by detection using a DyLight 488-conjugated goat anti-rabbit secondary antibody. Nuclei were counterstained with DAPI.



Zebrafish ACACA / Acetyl-CoA Carboxylase 1 Antibody Ovary IHC. Immunohistochemistry staining of FFPE zebrafish ovary tissue using Zebrafish ACACA Antibody demonstrates cytoplasmic HRP-DAB brown staining within ovarian follicular and oocyte-associated cellular compartments. The staining pattern is consistent with expression of Acetyl-CoA Carboxylase 1 (ACACA), also known as ACC1, a rate-limiting enzyme in fatty acid biosynthesis that catalyzes the formation of malonyl-CoA from acetyl-CoA. Prominent staining within lipid-rich ovarian tissue is consistent with the essential role of ACACA in lipid metabolism, membrane biogenesis, energy storage, and reproductive tissue development. Heat mediated antigen retrieval was performed in EDTA buffer. Primary antibody was incubated overnight at 4Â°C followed by detection using a peroxidase-conjugated goat anti-rabbit secondary antibody and DAB chromogen.



Zebrafish ACACA / Acetyl-CoA Carboxylase 1 Antibody Liver IHC. Immunohistochemistry staining of FFPE zebrafish liver tissue using Zebrafish ACACA Antibody demonstrates granular cytoplasmic HRP-DAB brown staining throughout hepatocyte-associated cellular populations. The staining pattern is consistent with expression of Acetyl-CoA Carboxylase 1 (ACACA), also known as ACC1, a rate-limiting enzyme in de novo fatty acid biosynthesis that catalyzes the conversion of acetyl-CoA to malonyl-CoA. Prominent hepatic staining is consistent with the central role of ACACA in lipid metabolism, energy storage, and regulation of fatty acid synthesis within the liver. Heat mediated antigen retrieval was performed in EDTA buffer. Primary antibody was incubated overnight at 4Â°C followed by detection using a peroxidase-conjugated goat anti-rabbit secondary antibody and DAB chromogen.



Zebrafish ACACA / Acetyl-CoA Carboxylase 1 Antibody Lipid Metabolism WB. Western blot analysis of zebrafish head tissue lysate using Zebrafish ACACA Antibody demonstrates a prominent immunoreactive band at approximately 269 kDa, consistent with the predicted molecular weight of Acetyl-CoA Carboxylase 1 (ACACA), also known as ACC1. ACACA is a biotin-dependent enzyme that catalyzes the conversion of acetyl-CoA to malonyl-CoA, the committed and rate-limiting step in de novo fatty acid biosynthesis. The observed band is consistent with expression of this key metabolic regulator, which plays an essential role in lipid synthesis, energy storage, membrane biogenesis, and cellular metabolic homeostasis. Electrophoresis was performed on an 8% SDS-PAGE gel under reducing conditions followed by transfer to a nitrocellulose membrane. Signal was detected using an HRP-conjugated secondary antibody and enhanced chemiluminescent substrate. Predicted molecular weight: ~269 kDa. Observed molecular weight: ~269 kDa.

Description

Zebrafish ACACA Antibody / Acetyl-CoA Carboxylase 1 Antibody recognizes Acetyl-CoA Carboxylase Alpha (ACACA), also known as Acetyl-CoA Carboxylase 1 (ACC1), a biotin-dependent enzyme that catalyzes the ATP-dependent carboxylation of acetyl-CoA to malonyl-CoA. This reaction represents the committed and rate-limiting step of de novo fatty acid biosynthesis, making ACACA a central regulator of lipid metabolism and energy homeostasis. Through production of malonyl-CoA, ACACA provides the essential substrate required for fatty acid elongation while also influencing cellular metabolic pathways that govern nutrient utilization and energy storage. The highly conserved nature of lipid metabolic pathways has established zebrafish as an important vertebrate model for studying ACACA function in development, physiology, and metabolic disease.

Fatty acid synthesis is critical for membrane biogenesis, energy storage, cellular growth, and tissue development. In zebrafish, ACACA contributes to regulation of lipid accumulation, embryonic development, hepatic metabolism, and overall energy balance. Expression of ACACA is frequently examined in studies investigating obesity, lipid homeostasis, metabolic adaptation, and nutritional regulation. Because rapidly growing tissues require continuous lipid synthesis for

membrane production and cellular expansion, ACACA activity is tightly controlled by hormonal, nutritional, and intracellular signaling pathways.

ACACA functions as a major metabolic control point that integrates signals from nutrient availability, growth factor pathways, and cellular energy status. The enzyme is regulated by phosphorylation, allosteric interactions, and transcriptional mechanisms that allow cells to adjust lipid synthesis according to physiological demands. Altered ACACA expression or activity has been associated with metabolic disorders, fatty liver disease, obesity, insulin signaling abnormalities, and cancer-associated metabolic reprogramming. Consequently, ACACA remains an important target in studies focused on metabolism, endocrinology, and disease-associated changes in cellular bioenergetics.

Zebrafish provide unique advantages for examining lipid metabolism because of their genetic tractability, rapid development, and suitability for in vivo imaging of metabolic processes. Researchers frequently monitor ACACA expression during investigations of diet-induced metabolic changes, liver function, developmental physiology, and environmental influences on lipid homeostasis. Because many lipid regulatory pathways are highly conserved between zebrafish and mammals, findings generated in zebrafish models often provide valuable insight into vertebrate metabolism and metabolic disease mechanisms.

At NSJ Bioreagents, we provide highly validated antibodies for metabolism, developmental biology, endocrinology, and zebrafish research. Zebrafish ACACA Antibody / Acetyl-CoA Carboxylase 1 Antibody targets a key enzyme involved in fatty acid biosynthesis and metabolic regulation. ACACA expression is widely studied in the context of lipid metabolism, energy homeostasis, liver biology, nutritional physiology, and metabolic disease research. Continued investigation of this important metabolic enzyme is expanding our understanding of the molecular mechanisms that govern lipid synthesis, cellular energetics, and vertebrate physiology.

For additional antibodies targeting this important regulator of fatty acid synthesis and lipid metabolism, visit our ACACA Antibody page.

This Zebrafish antibody is part of a broader Zebrafish / Danio rerio antibody panel offered by NSJ Bioreagents.

Application Notes

The optimal working dilution of the Zebrafish ACACA Antibody / Acetyl-CoA Carboxylase 1 Antibody should be determined empirically by the investigator.

Immunogen

An E.coli-derived Zebrafish ACC1/ACACA recombinant protein (amino acids I799-H1324) was used as the immunogen for the Zebrafish ACACA Antibody.

Storage

After reconstitution, the Zebrafish ACACA 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

Zebrafish Acetyl-CoA Carboxylase 1 Antibody, Zebrafish ACC1 Antibody, Zebrafish Acetyl Coenzyme A Carboxylase Alpha Antibody, Zebrafish Fatty Acid Synthesis Enzyme Antibody, Zebrafish Lipogenesis Marker Antibody, Zebrafish Fatty Acid Metabolism Antibody

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