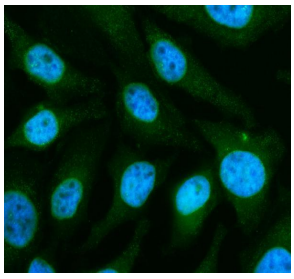
ACAA1 Antibody / 3-ketoacyl-CoA thiolase, peroxisomal Antibody (FY13596)

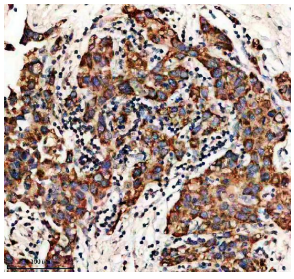
Catalog No.	Formulation	Size
FY13596	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

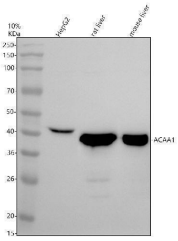
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P09110
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Immunofluorescence: 5ug/ml ELISA: 0.1-0.5 ug/ml
Limitations	This ACAA1 Antibody / 3-ketoacyl-CoA thiolase, peroxisomal Antibody is supplied exclusively for research use.



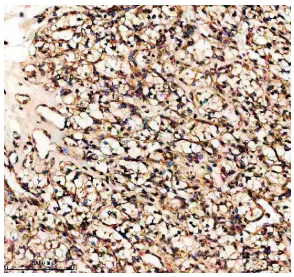
ACAA1 Antibody by IF in HeLa cells. Immunofluorescence staining using 3-ketoacyl-CoA thiolase, peroxisomal Antibody shows green cytoplasmic staining with small punctate structures and relatively weak nuclear signal. Nuclei are counterstained blue with DAPI. Cells underwent enzyme-mediated antigen retrieval for 15 minutes and blocking with 10% goat serum. Primary antibody was applied at 5 ug/mL overnight at 4oC, followed by a Fluoro488-conjugated secondary antibody at 1:500 for 30 minutes at 37oC. The observed staining distribution is described without assuming organelle-specific colocalization.



ACAA1 Antibody by IHC in human liver carcinoma. Immunohistochemistry of paraffin-embedded human liver carcinoma using 3-ketoacyl-CoA thiolase, peroxisomal Antibody reveals granular brown staining in tumor-cell cytoplasm. Sections underwent heat-mediated antigen retrieval in EDTA buffer (pH 8.0), followed by blocking with 10% goat serum. Primary antibody was applied at 2 ug/mL overnight at 4oC, followed by peroxidase-conjugated secondary antibody and DAB chromogen. Hematoxylin counterstains the nuclei blue.



ACAA1 Antibody by WB in human and rodent samples. Western blot analysis using 3-ketoacyl-CoA thiolase, peroxisomal Antibody detects a prominent immunoreactive band near 41 kDa in human HepG2 cells (lane 1), rat liver (lane 2), and mouse liver (lane 3). The calculated molecular weight is approximately 44 kDa. Reduced samples containing 30 ug protein per lane were separated by 10% SDS-PAGE and transferred to nitrocellulose. After blocking with 5% nonfat milk, the membrane was incubated with primary antibody at 0.5 ug/mL overnight at 4oC. Detection used an HRP-conjugated secondary antibody at 1:5000 and a chemiluminescent substrate. The band positions are described relative to the molecular weight standards in the blot.



ACAA1 Antibody by IHC in human renal carcinoma. Immunohistochemistry of paraffin-embedded human renal carcinoma using 3-ketoacyl-CoA thiolase, peroxisomal Antibody reveals brown staining distributed through tumor-cell cytoplasm. Sections underwent heat-mediated antigen retrieval in EDTA buffer (pH 8.0), followed by blocking with 10% goat serum. Primary antibody was applied at 2 ug/mL overnight at 4oC, followed by peroxidase-conjugated secondary antibody and DAB chromogen. Hematoxylin counterstains the nuclei blue.

Description

ACAA1 Antibody / 3-ketoacyl-CoA thiolase, peroxisomal Antibody detects ACAA1, a peroxisomal thiolase that participates in the final thiolytic step of fatty acid beta-oxidation. Peroxisomes shorten very-long-chain and certain branched fatty acids that are poorly processed directly by mitochondria. Following successive oxidation, hydration, and dehydrogenation reactions, ACAA1 cleaves a 3-ketoacyl-CoA intermediate through a reaction involving coenzyme A. This generates a shortened acyl-CoA molecule and an acetyl-CoA product, allowing the oxidation cycle to continue.

Peroxisomal beta-oxidation differs from mitochondrial beta-oxidation in both its enzyme organization and energetic consequences. The first peroxisomal oxidation step transfers electrons to molecular oxygen and produces hydrogen peroxide, which is handled by peroxisomal antioxidant systems. ACAA1 acts downstream of this step, helping complete the chain-shortening process. Its activity must be coordinated with peroxisomal transporters, acyl-CoA oxidases, and multifunctional enzymes. Products generated in peroxisomes can subsequently be transferred to mitochondria for further metabolism or used in other cellular pathways. The designation 3-ketoacyl-CoA thiolase, peroxisomal Antibody refers to the same gene product.

ACAA1 is one of several thiolase enzymes with related catalytic chemistry but distinct subcellular roles. It should not be confused with mitochondrial ACAA2, which contributes to fatty acid oxidation within the mitochondrial matrix. The peroxisomal localization of ACAA1 depends on protein-import machinery that recognizes appropriate targeting information. Disruption of peroxisomal lipid metabolism can lead to accumulation of unusual fatty acids and changes in membrane lipid composition. These biochemical consequences are especially important in tissues with high lipid turnover. ACAA1 is among the proteins targeted by antibodies in the NSJ Bioreagents portfolio, reflecting its importance in peroxisomal fatty acid metabolism. An ACAA1 Antibody can help contextualize the molecular functions and regulation of this protein.

Explore related research targets in our Metabolism Antibody / Metabolism Antibodies collection.

Application Notes

The optimal working dilution of the ACAA1 Antibody / 3-ketoacyl-CoA thiolase, peroxisomal Antibody should be determined empirically by the investigator.

Immunogen

The ACAA1 Antibody was generated using e. coli-derived human ACAA1 recombinant protein (amino acids M1-N424).

Storage

Once reconstituted, refrigerate the ACAA1 Antibody at 4oC for no longer than one month. For extended storage, freeze aliquots at -20oC for up to six months and avoid repeated freeze-thaw cycles.

Alternate Names

ACAA1 antibody, 3-ketoacyl-CoA thiolase, peroxisomal antibody, 3-ketoacyl-CoA thiolase antibody, peroxisomal antibody, acetyl-CoA acyltransferase 1 antibody, Acetyl-CoA C-myristoyltransferase antibody, Acetyl-CoA acyltransferase antibody, Acetyl CoA acyltransferase antibody, ACAA antibody

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