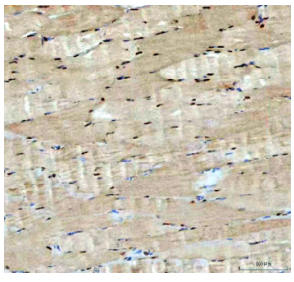
ACSS2 Antibody / Acetyl-coenzyme A synthetase (RQ7326)

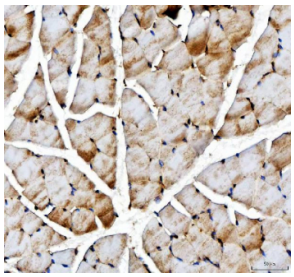
Catalog No.	Formulation	Size
RQ7326	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

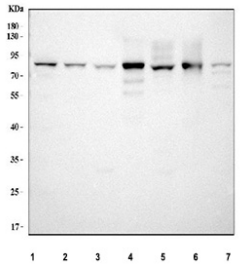
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q9NR19
Localization	Cytoplasmic, nuclear
Applications	Western blot: 0.5-1ug/ml Flow cytometry: 1-3ug/million cells Direct ELISA: 0.1-0.5ug/ml Immunohistochemistry (FFPE): 2-5ug/ml
Limitations	This ACSS2 antibody is available for research use only.



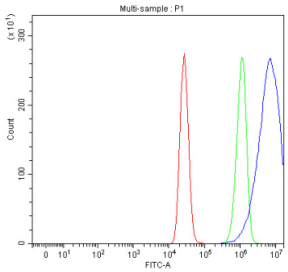
Immunohistochemical staining of FFPE human skeletal muscle tissue with ACSS2 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunohistochemical staining of FFPE rat skeletal muscle tissue with ACSS2 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot testing of 1) human HepG2, 2) human U-87 MG, 3) human MCF7, 4) rat liver, 6) rat C6, 7) mouse liver and 8) mouse Neuro-2a cell lysate with ACSS2 antibody. Predicted molecular weight ~79 kDa.



Flow cytometry testing of fixed and permeabilized human MCF7 cells with ACSS2 antibody at 1ug/million cells (blocked with goat sera); Red=cells alone, Green=isotype control, Blue= ACSS2 antibody.

Description

ACSS2 antibody recognizes Acetyl-coenzyme A synthetase 2, an essential metabolic enzyme encoded by the ACSS2 gene and responsible for generating acetyl-CoA from acetate. This enzyme localizes to both the cytosol and nucleus, allowing it to participate in lipid synthesis, energy metabolism, and epigenetic regulation through histone acetylation. The human ACSS2 gene resides on chromosome 20q11.22 and is highly expressed in metabolically active tissues including liver, kidney, brain, and adipose tissue. ACSS2-generated acetyl-CoA supports pathways such as fatty acid synthesis, cholesterol synthesis, ketone body utilization, and regulation of chromatin structure through acetylation-dependent gene expression.

Acetyl-coenzyme A synthetase 2 functions by ligating acetate to CoA in an ATP-dependent reaction, creating a direct metabolic link between nutrient availability and intracellular acetyl-CoA pools. Under conditions such as fasting, hypoxia, or increased energy demand, cells rely on ACSS2 to maintain acetyl-CoA homeostasis. In the nucleus, ACSS2 co-localizes with histone acetyltransferases and transcriptional regulators, enabling local production of acetyl-CoA for chromatin modification. This supports transcriptional programs related to stress adaptation, memory formation, neuronal plasticity, and energy-efficient metabolic rewiring. In neurons, ACSS2 is enriched in hippocampus and cortex, where it regulates activity-dependent gene expression and contributes to learning and synaptic maturation.

ACSS2 also plays important roles in cancer biology. Many solid tumors upregulate ACSS2 to utilize extracellular acetate as an alternative carbon source during metabolic stress. This contributes to tumor survival, lipid synthesis, and altered chromatin states associated with growth and metastasis. Elevated ACSS2 expression has been documented in breast cancer, glioblastoma, hepatocellular carcinoma, and renal tumors, where it supports cell proliferation under nutrient-poor conditions. The enzyme further participates in immune and inflammatory pathways by influencing macrophage lipid metabolism, cytokine responses, and oxidative stress adaptation.

At the subcellular level, ACSS2 shows dual localization. In the cytosol, it co-localizes with acetyl-CoA producing complexes and lipid synthesis machinery. In the nucleus, it is frequently observed near chromatin-rich regions and

transcription factor complexes that require acetyl-CoA to drive gene activation. Isoform-specific differences have been reported, with variants differing in N-terminal regulatory regions that influence nuclear targeting and response to phosphorylation. Developmentally, ACSS2 expression increases during postnatal growth as metabolic flexibility expands and acetylation-based gene regulation becomes more prominent.

This ACSS2 antibody is suitable for detecting Acetyl-coenzyme A synthetase 2 expression in research addressing metabolic regulation, lipid synthesis, epigenetic control, tumor metabolism, neuronal gene regulation, and stress-adaptive pathways. NSJ Bioreagents provides this reagent as part of its metabolism and cell signaling antibody collection.

Application Notes

Optimal dilution of the ACSS2 antibody should be determined by the researcher.

Immunogen

Recombinant human protein (amino acids E201-A651) was used as the immunogen for the ACSS2 antibody.

Storage

After reconstitution, the ACSS2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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