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ACSS2 Rabbit mAb

Catalog # AP75029

Product Information

Application	WB
Primary Accession	Q9NR19
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Purified
Calculated MW	78580

Additional Information

Gene ID	55902
Other Names	ACSS2
Dilution	WB~~1:1000-1:5000
Format	Liquid in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

Name	ACSS2
Synonyms	ACAS2
Function	Catalyzes the synthesis of acetyl-CoA from short-chain fatty acids (PubMed:10843999, PubMed:28003429, PubMed:28552616, PubMed:38369012, PubMed:39561764). Acetate is the preferred substrate (PubMed:10843999, PubMed:28003429, PubMed:38369012, PubMed:39561764). Can also utilize propionate with a much lower affinity (PubMed:38369012). Catalyzes the conversion of lactate into lactoyl-CoA (PubMed:39561764). Does not catalyze the conversion of butyrate or crotonate to their corresponding acyl-CoAs (PubMed:38369012). Nuclear ACSS2 promotes glucose deprivation-induced lysosomal biogenesis and autophagy, tumor cell survival and brain tumorigenesis (PubMed:28552616). Glucose deprivation results in AMPK-mediated phosphorylation of ACSS2 leading to its translocation to the nucleus where it binds to TFEB and locally produces acetyl-CoA for histone acetylation in the promoter regions of TFEB

target genes thereby activating their transcription (PubMed:28552616). The regulation of genes associated with autophagy and lysosomal activity through ACSS2 is important for brain tumorigenesis and tumor survival (PubMed:28552616). Acts as a chromatin-bound transcriptional coactivator that up-regulates histone acetylation and expression of neuronal genes (By similarity). Can be recruited to the loci of memory-related neuronal genes to maintain a local acetyl-CoA pool, providing the substrate for histone acetylation and promoting the expression of specific genes, which is essential for maintaining long-term spatial memory (By similarity).

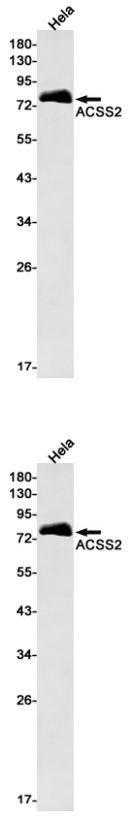
Cellular Location

Cytoplasm, cytosol. Cytoplasm {ECO:0000250|UniProtKB:Q9QXG4}. Nucleus Note=Glucose deprivation results in its AMPK-dependent phosphorylation and subsequent nuclear translocation (PubMed:28552616). Phosphorylation at Ser-659, leads to exposure of its nuclear localization signal which is required for its interaction with KPNA1 and subsequent translocation to the nucleus (PubMed:28552616). Found in the cytoplasm in undifferentiated neurons and upon differentiation, translocates to nucleus (By similarity). {ECO:0000250|UniProtKB:Q9QXG4, ECO:0000269|PubMed:28552616}

Background

Activates acetate so that it can be used for lipid synthesis or for energy generation. Cytoplasmic acetyl-CoA synthetase (AceCS1) catalyzes the conversion of acetate and CoA to acetyl-CoA. Acetyl-CoA synthesized by AceCS1 is used for fatty acid and lipid biosynthesis. Studies suggest that this enzyme is regulated by sterol regulatory element-binding proteins.

Images



Western blot analysis of ACSS2 in Hela lysates using ACSS2 antibody.

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