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KD-Validated Anti-ACSS2 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI2350

Product Information

Application	WB, FC
Primary Accession	Q9NR19
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Isotype	Rabbit IgG
Clone Names	23GB 1705
Calculated MW	78580
Gene Name	ACSS2
Aliases	ACSS2; Acyl-CoA Synthetase Short Chain Family Member 2; ACS; DJ1161H23.1; ACAS2; ACSA; Acetyl-Coenzyme A Synthetase 2 (ADP Forming); Acetyl-Coenzyme A Synthetase, Cytoplasmic; Acetyl-CoA Synthetase 1; Acyl-Activating Enzyme; Propionate--CoA Ligase; EC 6.2.1.1; AceCS1; AceCS; ACECS; Acyl-CoA Synthetase Short-Chain Family Member 2; Cytoplasmic Acetyl-Coenzyme A Synthetase; Acetyl-CoA Synthetase; Acetate--CoA Ligase; Acetate Thiokinase; Acetate-CoA Ligase; EC 6.2.1.17; EC 6.2.1
Immunogen	A synthesized peptide derived from human ACSS2

Additional Information

Gene ID	55902
Other Names	Acetyl-coenzyme A synthetase, cytoplasmic, 6.2.1.1, Acetate--CoA ligase, Acetyl-CoA synthetase, ACS, AceCS, Acetyl-CoA synthetase 1, ACSS2, ACAS2

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}

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