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ACADVL/VLCAD Antibody

Rabbit mAb
Catalog # AP93241

Product Information

Application	WB, IHC, IP
Primary Accession	P49748
Reactivity	Human
Clonality	Monoclonal
Other Names	ACAD6; Acadvl; LCACD; VLCAD;
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	70390

Additional Information

Dilution	WB 1:500~1:2000 IHC 1:50~1:200 IP 1:50
Purification	Affinity-chromatography
Immunogen	A synthesized peptide derived from human ACADVL/VLCAD
Description	Active toward esters of long-chain and very long chain fatty acids such as palmitoyl-CoA, mysritoyl-CoA and stearoyl-CoA. Can accomodate substrate acyl chain lengths as long as 24 carbons, but shows little activity for substrates of less than 12 carbons.
Storage Condition and Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.

Protein Information

Name	ACADVL (HGNC:92)
Function	Catalyzes the first of the four reactions of the mitochondrial fatty acid beta-oxidation (FAO) pathway, which consists in the proR-proR stereospecific alpha, beta-dehydrogenation of fatty acyl-CoA thioesters using the electron transfer flavoprotein (ETF) as their physiologic electron acceptor, resulting in the formation of trans-2-enoyl-CoA ((2E)-enoyl-CoA) (PubMed:17564966, PubMed:18227065, PubMed:26474213, PubMed:7668252, PubMed:9461620, PubMed:9599005, PubMed:9839948). The mitochondrial FAO pathway is the major energy- producing process in tissues and is performed through cycles of four consecutive reactions (PubMed:26474213, PubMed:7668252). Each FAO cycle shortens the fatty acyl-CoA by two carbons, yielding one acetyl-CoA (for the citric acid cycle), one FADH(2), and one NADH (which donate electrons to the respiratory chain for ATP production) (PubMed:26474213, PubMed:7668252). Among the different mitochondrial acyl-CoA dehydrogenases, very long-chain specific acyl-CoA dehydrogenase acts specifically on fatty acyl-CoAs with saturated 12 to 24 carbons long primary

	chains (PubMed:17564966, PubMed:21237683, PubMed:9839948), but can also catalyze monounsaturated fatty acids such as oleate ((9Z)-octadecenoate), (9Z)-hexadecenoate, and others (PubMed:17564966). Can use (4Z,7Z,10Z,13Z,16Z,19Z)-docosahexaenoate as substrate in vitro (which is not primarily used for energy but mainly beta-oxidized in the peroxisomes) (PubMed:17564966, PubMed:26474213). In addition, based on its established catalytic mechanism, and combined genetic interaction or mutant phenotype evidence, it is predicted to act also on substrates that have not been tested experimentally but are metabolized by mitochondrial FAO, including long-chain unsaturated fatty acids such as linoleate (9Z,12Z-octadecadienoate), linolenate (9Z,12Z,15Z-octadecatrienoate), and others (PubMed:26474213). Among the different mitochondrial acyl-CoA dehydrogenases, its FAO activity overlaps with that of ACAD9 and ACADL, but plays a primary role in tissues where it is the main long-chain ACAD expressed, such as the heart and skeletal muscle (PubMed:17564966).
Cellular Location	Mitochondrion inner membrane; Peripheral membrane protein
Tissue Location	Predominantly expressed in heart and skeletal muscle (at both mRNA and protein levels) (PubMed:17564966, PubMed:8845838). Also detected in kidney and liver (at protein level) (PubMed:8845838).

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