

Lpin1 protein Rabbit pAb

Catalog # AP99090

Product Information

Application	IHC-P, IHC-F, IF
Primary Accession	Q91ZP3
Other Accession	Q91ZP3
Reactivity	Mouse
Predicted	Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	102002
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from mouse Lpin 1 protein
Epitope Specificity	241-340/924
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the lipin family.
SUBUNIT	Interacts (via LXXIL motif) with PPARA. Interacts with PPARGC1A. Interaction with PPARA and PPARGC1A leads to the formation of a complex that modulates gene transcription. Interacts with MEF2C.
Post-translational modifications	Phosphorylated at multiple sites in response to insulin. Phosphorylation is controlled by the mTOR signaling pathway. Phosphorylation is decreased by epinephrine. Phosphorylation may not directly affect the catalytic activity but may regulate the localization. Dephosphorylated by the CTDNEP1-CNEP1R1 complex. Sumoylation is important in brain and is marginal in other tissues. Sumoylation facilitates nuclear localization of isoform 2 in neuronal cells and its transcriptional coactivator activity.
DISEASE	Note=Defects in Lpin1 are the cause of the fatty liver dystrophy phenotype (fld). fld mutant mice are characterized by neonatal fatty liver and hypertriglyceridemia that resolve at weaning, and neuropathy affecting peripheral nerve in adulthood. Adipose tissue deficiency, glucose intolerance and increased susceptibility to atherosclerosis are associated with this mutation too. Two independent mutant alleles are characterized in this phenotype, fld and fld2j.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Lipin 1 is a member of the Lipin family of nuclear proteins. This family contains three members: Lipin 1, Lipin 2 and Lipin 3, all of which contain a nuclear signal sequence, a highly conserved amino-terminal (NLIP) domain and a carboxy-terminal (CLIP) domain. LPIN1 (Lipin 1) is crucial for normal adipose tissue development and metabolism. LPIN1 selectively activates a subset of PGC1 alpha target pathways, including fatty acid oxidation and mitochondrial oxidative phosphorylation by inducing expression of the nuclear receptor PPARalpha. LPIN1 also inactivates the lipogenic program and suppresses circulating lipid levels. An abundance of LPIN1 promotes fat accumulation and insulin sensitivity, whereas a deficiency in LPIN1 may deter normal adipose tissue development, resulting in insulin resistance and

lipodystrophy, a heterogeneous group of disorders characterized by loss of body fat, fatty liver, hypertriglyceridemia and insulin resistance.

Additional Information

Gene ID	14245
Other Names	PAP1; Lipin1; fld; LPIN1_HUMAN; LPIN1; Lipin-1; 3.1.3.4; KIAA0188; LPIN1_MOUSE; Fatty liver dystrophy protein; Flde; lipin 1; phosphatidate phosphatase LPIN1
Dilution	IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	Lpin1
Synonyms	Flde {ECO:0000303 PubMed:11138012}
Function	Acts as a magnesium-dependent phosphatidate phosphatase enzyme which catalyzes the conversion of phosphatidic acid to diacylglycerol during triglyceride, phosphatidylcholine and phosphatidylethanolamine biosynthesis and therefore controls the metabolism of fatty acids at different levels (PubMed: 17158099). Is involved in adipocyte differentiation (PubMed: 16049017). Also acts as nuclear transcriptional coactivator for PPARGC1A/PPARA regulatory pathway to modulate lipid metabolism gene expression (PubMed: 16950137).
Cellular Location	[Isoform 1]: Mitochondrion outer membrane. Cytoplasm. Nucleus membrane. Note=Recruited at the mitochondrion outer membrane following phosphatidic acid formation mediated by PLD6 In neuronals cells, isoform 1 is exclusively cytoplasmic (PubMed:21397848). In 3T3-L1 pre-adipocytes, it primarily located in the cytoplasm (PubMed:16049017).
Tissue Location	Specifically expressed in skeletal muscle. Also expressed prominently in adipose tissue, and testis. Lower expression also detected in kidney, lung, brain and liver [Isoform 2]: Predominant isoform in the brain.

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