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CPT1A Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2524b

Product Information

Application	WB, IHC-P, E
Primary Accession	P50416
Reactivity	Human, Bovine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB4655
Calculated MW	88368
Antigen Region	606-636

Additional Information

Gene ID	1374
Other Names	Carnitine O-palmitoyltransferase 1, liver isoform, CPT1-L, Carnitine O-palmitoyltransferase I, liver isoform, CPT I, CPTI-L, Carnitine palmitoyltransferase 1A, CPT1A, CPT1
Target/Specificity	This CPT1A antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 606-636 amino acids from the C-terminal region of human CPT1A.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	CPT1A Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CPT1A (HGNC:2328)
Synonyms	CPT1
Function	Catalyzes the transfer of the acyl group of long-chain fatty acid-CoA

	conjugates onto carnitine, an essential step for the mitochondrial uptake of long-chain fatty acids and their subsequent beta-oxidation in the mitochondrion (PubMed:11350182, PubMed:14517221, PubMed:16651524, PubMed:9691089). Also possesses a lysine succinyltransferase activity that can regulate enzymatic activity of substrate proteins such as ENO1 and metabolism independent of its classical carnitine O-palmitoyltransferase activity (PubMed:29425493). Plays an important role in hepatic triglyceride metabolism (By similarity). Also plays a role in inducible regulatory T-cell (iTreg) differentiation once activated by butyryl-CoA that antagonizes malonyl-CoA-mediated CPT1A repression (By similarity). Sustains the IFN-I response by recruiting ZDHCC4 to palmitoylate MAVS at the mitochondria leading to MAVS stabilization and activation (PubMed:38016475). Promotes ROS-induced oxidative stress in liver injury via modulation of NFE2L2 and NLRP3-mediated signaling pathways (By similarity).
Cellular Location	Mitochondrion outer membrane; Multi-pass membrane protein
Tissue Location	Strong expression in kidney and heart, and lower in liver and skeletal muscle

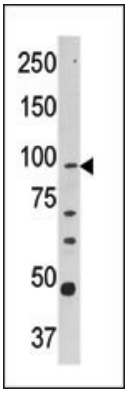
Background

The mitochondrial oxidation of long-chain fatty acids is initiated by the sequential action of carnitine palmitoyltransferase I (which is located in the outer membrane and is detergent-labile) and carnitine palmitoyltransferase II (which is located in the inner membrane and is detergent-stable), together with a carnitine-acylcarnitine translocase. CPT I is the key enzyme in the carnitine-dependent transport across the mitochondrial inner membrane and its deficiency results in a decreased rate of fatty acid beta-oxidation.

References

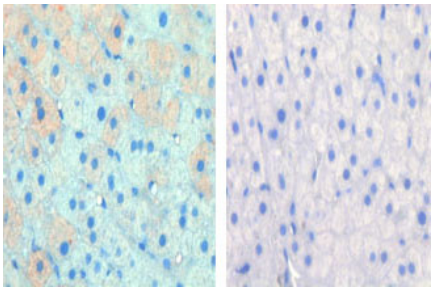
Rasmussen, B.B., et al., J. Clin. Invest. 110(11):1687-1693 (2002).
Ogawa, E., et al., J. Hum. Genet. 47(7):342-347 (2002).
Cook, G.A., et al., Am. J. Med. Sci. 318(1):43-48 (1999).
IJlst, L., et al., J. Clin. Invest. 102(3):527-531 (1998).
Britton, C.H., et al., Genomics 40(1):209-211 (1997).

Images



Western blot analysis of anti-CPT1A Pab (Cat. #AP2524b) in Y79 cell line lysate (35ug/lane). CPT1A(arrow) was detected using the purified Pab.

Left image is paraformaldehyde-fixed and paraffin-embedded cow lactating with SFRP5 Antibody (Center), which was peroxidase-conjugated to the secondary antibody, followed by AEC staining, right image is contrast, did not add the antibody. This data was kindly offered by Hideaki Hayashi, University of Bern,



Switzerland.

Citations

- Molecular adaptation in adipose tissue in response to overfeeding with a high-fat diet under sedentary conditions in South Asian and Caucasian men.