ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Carnitine Palmitoyl Transferase-1: Liver (CPT1-L) Antibodies

Cat. # CPT1L12-S	Rabbit Anti-Mouse CPT1-L antiserum	**SIZE**: 100 ul
Cat. # CPT1L12-A	Rabbit Anti-Mouse CPT1-L IgG (Affinity pure)	**SIZE**: 100 ug
Cat. # CPT1L12-P	Mouse CPT1-L Control/blocking peptide	**SIZE**: 100 ug

In cells, excess of metabolic fuel is converted into fatty acids in cytosol and oxidized later in mitochondria to generate ATP and acetyl-CoA. In fatty acid synthesis, catalytic formation of malonyl-CoA (precursor for long-chain fatty acyl-CoA, LCFA-CoA) from acetyl-CoA by **Acetyl-CoA carboxylase** (**ACC-1**) is the rate limiting step. The translocation of LCFA-CoA from cytosol to mitochondria is catalyzed by two **carnitine palmitoyl transferases (CPT-1** & **CPT-2**) and regulated by **ACC-2,** the rate limiting step of mitochondrial fatty acid □-oxidation. Activities of ACC-1 and 2 are regulated by their phosphorylation by 5'-AMP-activated protein kinase **(AMPK)**. Diabetes deranges AMPK master-switch and represses the ACC-1 gene-expression and stimulates excessive fatty acid oxidation which in turn interferes with glucose metabolism.

Mitochondrial oxidation of LC-FCA is initiated by the sequential action of CPT-1, which is located in the outer membrane, and CPT-2, which is located in the inner membrane together with a carnitine-acylcarnitine translocase. **CPT-1 liver or CPT1A or LCPT-1** (mouse 764-aa, rat 773-aa, human 773-aa, ~88-kda, chromosome 11q13) is malonyl-CoA-*sensitive* enzyme localized on the outer surface of mitochondrial 'contact sites'. It catalyzes the conversion of long-chain acyl-CoA into acyl-carnitine, committing the acyl moiety to intramitochondrial oxidation. It is predominantly expressed in kidney, liver and in trace amounts in heart. The 'muscle' isoform **CPT1B or CPT1M or MCPT**-1 (mouse/rat/human 772-aa, chromosome 22q13.3) is found in heart, skeletal muscle, adipose tissue and brain. The aa sequences of the two isoforms are ~61% identical.

Source of Antigen and Antibodies

Antigen	13aa peptide of mouse CPT1-L; Gene Accession # P97742 **Designated (CPT1L12-P or control peptide).**
Location	~C-terminus
Ab Host/type	Rabbit, polyclonal
Ab Format	Unpurified antiserum (cat #CPT1L12-S) Aff pure IgG (**cat #CPT1L12-A**)
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied in Buffer: 0.05% azide
Reconstitute powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
100 ug/100 ul solution lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage

Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

Long-term: at –20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20oC or below.
Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure using Chemiluminescence technique).

ELISA (1:10K-1:100K; using 50-100 ng of control peptide/well).

Histochemistry & Immunofluorescence: not tested. We recommend the use of affinity pure antibody at 2-20 ug/ml.

Specificity & Cross-reactivity

The mouse CPT1L12-P peptide is 84% conserved in rat and 69% in human CPT1-L. No significant sequence homology of CPT1L12-P is seen with MCPT-1, CPT-2 or any other protein. Antibody reactivity in various species is not established. The CPT1L12-P, Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity (see detailed protocol at:web site).

General References: (1) Cox KB et al (1998) Mamm. Genome 9, 608-610; Uenka R et al (1996) J. Biochem. 119, 533; Britton CH et al (1995) PNAS 92, 1984; Britton CH et al (1997) Genomics 40, 209-211

**This product is for In vitro research use only.*

Related materials available from ADI

Antibodies: ACC-1, ACC2, CPT-1 and CPT2, AMPK1 & 2.

CPT1L12-S-A-P 70807A

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