ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Carnitine Palmitoyl Transferase-1: Muscle (CPT1-M) Antibodies

Cat. # CPT1M11-S	Rabbit Anti-Mouse CPT1-M antiserum	**SIZE**: 100 ul
Cat. # CPT1M11-A	Rabbit Anti-Mouse CPT1-M IgG (Aff. Pure)	**SIZE**: 100 ug
Cat. # CPT1M11-P	Mouse CPT1-M Control/blocking peptide	**SIZE**: 100 ug

In cells and organisms, the 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**). Activities of ACC-1 and **ACC-2** are regulated by their phosphorylation by 5'-AMP-activated protein kinase **(AMPK)**. Diabetes deranges AMPK master-switch, represses the ACC-1 gene-expression and stimulates excessive fatty acid oxidation which in turn interferes with glucose metabolism. Cytosolic LCFA-CoA is converted into acyl-carnitine at mitochondrial membrane surface by carnitine palmitoyl transferase-1 **(CPT-1**) followed by the reconversion of the latter into LCFA-CoA by **CPT-2** in the mitochondrial matrix.

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-M Gene Accession # Q63704 ; **Designated (CPT1M11-P or Control peptide)** conjugated to KLH
Location	~C-terminus
Ab Host/type	Rabbit, polyclonal
Ab Format	Unpurified antiserum (cat #CPT1M11-S) Aff pure IgG (**cat #CPT1M11-A**)
2-ab	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 CPT1M11-P peptide is 92% conserved in rat, and 69% in human CPT1-M. No significant sequence homology of CPT1M11-P is seen with LCPT-1, CPT-2 or any other protein. Antibody reactivity in various species is not established. The CPT1M11-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) Britton CH et al (1997) Genomics 40, 209-211; Yamazaki N et al (19976) BBA 1307, 157-161; Yamazaki N et al (1997) FEBS lett. 409, 401-406; van der Leij FR et al (1997) BBA 1352, 123-128

Cheng L, 2004, Nature Medicine 10, 1245 – 1250, WB, mice
Maxwell MA, 2005, JBC in press, WB, mouse C2C12 cells

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

Related materials available from ADI
Antibodies: ACC-1, ACC2, CPT-1 and CPT2, AMPK1 & 2.

CPT1M11-S-A-P 71208S

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