

Product Specification Sheet

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

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

<b>Antigen</b>	13aa peptide of mouse CPT1-M Gene Accession # Q63704 ; <b>Designated (CPT1M11-P or Control peptide)</b> conjugated to KLH
<b>Location</b>	~C-terminus
<b>Ab Host/type</b>	Rabbit, polyclonal
<b>Ab Format</b>	Unpurified antiserum (cat #CPT1M11-S) Aff pure IgG (cat #CPT1M11-A)
<b>2-ab</b>	Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates also available)
<b>-ve control</b>	# 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 1 mg/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 -200C 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 (1997) 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