ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Acetyl-CoA Carboxylase-1 (ACC-1) Antibodies

Cat. # ACC11-S	Rabbit Anti-Human ACC-1, antiserum #1	**SIZE**: 100 ul
Cat. # ACC11-A	Rabbit Anti-Human ACC-1 IgG # 1 (Affinity pure)	**SIZE**: 100 ug
Cat. # ACC11-P	Human ACC-1 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.

ACC1 (rat 2345-aa, human 2345-aa, ~**265 kDa**, chromosome 17q21) is also known as **ACC-alpha** is a cytosolic enzyme, enriched in liver, adipose and lactating mammary tissues. ACC-1 from rat, human, chicken are over 90% identical. ACC1 catalyzes the carboxylation of acetyl-CoA to form malonyl-CoA, the rate-limiting step in the biogenesis of LCFA-CoA. ACC1 carries three functions: biotin carboxyl carrier protein, biotin carboxylase, and carboxyltransferase (catalytic activity). Two variants of ACC-1 have been described: one with 8 additional amino acids commencing at Pro-1196, and the other which is 59 aa shorter than the predominant fat and liver isoform exist in mammals. The presence of 8 additional amino acids inhibits the in vitro phosphorylation of the Ser1200 by camp-dependent kinase. The two ACC1 isoform are differentially regulated in a tissue specific manner and under different physiological conditions. The activity of ACC1 is finely regulated by hormone dependent phosphorylation and dephosphorylation.

Source of Antigen and Antibodies

Antigen	15aa peptide of Human ACC-1 (gene accession # Q13085); **Designated (ACC11-P)** conjugated to KLH. Epitope location ~ N-terminus
Ab Host/type	Rabbit, polyclonal Unpurified serum (cat# ACC11-S) Aff pure IgG (**cat #ACC11-A**) purified over antigen-agarose column
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 ACC11-P peptide is 100% conserved in mouse, rat, human, bovine, pig, ovine and 86% in chicken ACC-1. No significant sequence homology of ACC11-P is seen with ACC-2 or any other protein. Antibody reactivity in various species is not known. The ACC11-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) Munday MR et al (1988) Eur. J. Biochem. 175, 331; Abu-Elheiga et al. (2000) PNAS 97, 1444; Lee et al. (2001) J. Biol. Chem 276, 2576; Abu-Elheiga et al. (1997) J. Biol. Chem. 272, 10699; Hoppel et al. (2001) ABB 392,321; Fraser & Zammit (1998) Biochem. J. 329, 225.Stapleton et al. (1996) J. Biol. Chem. 271, 611; Mitchelhill et al. (1997) J. Biol. Chem. 272, 24475

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

Related materials available from ADI

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

ACC11-S-A 70626A

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