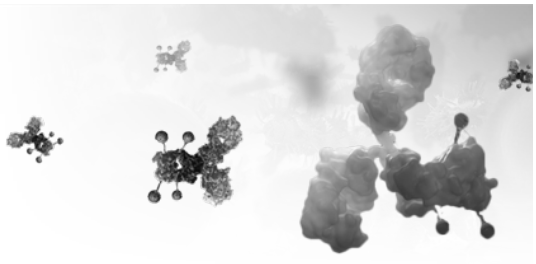
CD Creative Diagnostics®



Anti-ACACA monoclonal antibody, clone FQS4254Z (DCABH-233)

This product is for research use only and is not intended for diagnostic use.

PRODUCT INFORMATION

Product Overview	Rabbit monoclonal to Acetyl Coenzyme A Carboxylase (phospho S221)
Antigen Description	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 (ACC1) is the rate limiting step. The translocation of LCFA CoA from cytosol to mitochondria is catalyzed by two carnitine palmitoyl transferases (CPT1 and CPT2) and regulated by ACC2, the rate limiting step of mitochondrial fatty acid beta oxidation. Activities of ACC1 and 2 are regulated by their phosphorylation by 5 AMP activated protein kinase (AMPK). Diabetes deranges AMPK master switch and represses the ACC1 gene expression and stimulates excessive fatty acid oxidation which in turn interferes with glucose metabolism. ACC1 is also known as ACC alpha is a cytosolic enzyme, enriched in liver, adipose and lactating mammary tissues. 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 ACC1 have been described. One with 8 additional amino acids commencing at Pro 1196. The other which is 59aa 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.
Immunogen	A synthetic peptide corresponding to residues surrounding serine 221 of Human Acetyl Coenzyme A Carboxylase.
Isotype	IgG
Source/Host	Rabbit
Species Reactivity	Human

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Clone	FQS4254Z
Purification	Protein A purified
Conjugate	Unconjugated
Applications	WB, IHC
Positive Control	HeLa cell lysate treated with calyculin A; Human muscles.
Format	Liquid
Size	100 µl
Buffer	PBS 49%,Glycerol 50%
Preservative	0.1% Sodium Azide
Storage	Store at -20°C. Stable for 12 months at -20°C

GENE INFORMATION

Gene Name	ACACA acetyl-CoA carboxylase alpha [Homo sapiens]
Official Symbol	ACACA
Synonyms	ACACA; acetyl-CoA carboxylase alpha; ACAC, ACC, acetyl Coenzyme A carboxylase alpha; acetyl-CoA carboxylase 1; ACC1; acetyl CoA carboxylase 1; ACC-alpha; acetyl-Coenzyme A carboxylase alpha; ACC; ACAC; ACCA; ACACAD;
Entrez Gene ID	31
Protein Refseq	NP_942131
UniProt ID	B2ZZ90
Chromosome Location	17q21
Pathway	AMPK signaling, organism-specific biosystem; ChREBP activates metabolic gene expression, organism-specific biosystem; Fatty Acid Biosynthesis, organism-specific biosystem; Fatty Acyl-CoA Biosynthesis, organism-specific biosystem; Fatty acid biosynthesis, organism-specific biosystem; Fatty acid biosynthesis, conserved biosystem; Fatty acid, triacylglycerol, and ketone body metabolism, organism-specific biosystem;
Function	ATP binding; acetyl-CoA carboxylase activity; biotin binding; biotin carboxylase activity; ligase activity; metal ion binding; nucleotide binding; protein binding;

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