AMPK alpha 1 Antibody – Rabbit Polyclonal

PRODUCT OVERVIEW

Product Name	AMPK alpha 1, Polyclonal Antibody
Full Product Name	AMPK alpha 1 Antibody BIOTIN
Product Gene Name	anti-AMPK alpha 1 antibody
Product Synonym Names	BIOTIN-Conjugated 5'-AMP-activated protein kinase catalytic subunit alpha-1 Antibody; 5 AMP activated protein kinase alpha 1catalytic subunit antibody; AAPK1 antibody; ACACA kinase antibody; acetyl CoA carboxylase kinase antibody; AMP -activate kinase alpha 1 subunit antibody; AMPK 1 antibody; AMPK alpha 1 antibody; HMG CoA reductase kinase antibody; HMGCR kinase antibody; hormone sensitive lipase kinase antibody; Hydroxymethylglutaryl CoA reductase kinase antibody; im:7154392 antibody; kinase AMPK alpha1 antibody; PRKAA 1 antibody; Protein kinase AMP activated alpha 1 catalytic subunit antibody; SNF1A antibody; Tau protein kinase PRKAA1 antibody
Clonality	Polyclonal
Isotype	IgG
Host	Rabbit
Species Reactivity	Human, Mouse, Rat
Purity/Purification	Immobilized antigen affinity chromatography
Concentration	0.5-1.5 ug/ul in antibody stabilization buffer (lot specific)
Preparation and Storage	Store at -20 degree C for long term storage.
Molecular Weight	63,973 Da
3D Structure	ModBase 3D Structure for P54645
Immunogen	Synthetic peptide taken within amino acid region 500-550 on rat 5'-AMP-activated protein kinase catalytic subunit alpha-1 protein.
Conjugation	BIOTIN
Molecular Function	[acetyl-CoA carboxylase] kinase activity; [hydroxymethylglutaryl-CoA reductase (NADPH)] kinase activity; AMP-activated protein kinase activity; ATP binding; chromatin binding; eukaryotic elongation factor-2 kinase activator activity g
Subcellular Location	Nucleus; Cytoplasm
Applications Tested/Suitable for anti-AMPK alpha 1 antibody	ELISA (EIA), Immunoprecipitation (IP), Western Blot (WB)
Application Notes for anti-AMPK alpha 1 antibody	ELISA: 1:50,000 IP: 1:200 WB: 1:2,500-1:5,000
Related Product Information for anti-AMPK alpha 1 antibody	Overview: Catalytic subunit of AMP-activated protein kinase (AMPK), an energy sensor protein kinase that plays a key role in regulating cellular energy metabolism. In response to reduction of intracellular ATP levels, AMPK activates energy-producing pathways and inhibits energy-consuming processes: inhibits protein, carbohydrate and lipid biosynthesis, as well as cell growth and proliferation. Structure: The AIS (autoinhibitory sequence) region shows some sequence similarity with the ubiquitin-associated domains and represses kinase activity. Expression: Low expression in kidney, liver, lung, heart and brain.

Other Notes	Small volumes of anti-AMPK alpha 1 antibody vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for AMPK alpha 1 purchase	MBS5400313 is an antibody targeting AMPK alpha 1. Also known as AMPK alpha 1 Antibody BIOTIN. Reactive in Human, Mouse, Rat. Host: Rabbit.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for AMPK alpha 1. It may not necessarily be applicable to this product.

NCBI GI #	478247105
NCBI GeneID	65248
NCBI Accession #	NP_062015.2
UniProt Primary Accession #	P54645
UniProt Related Accession #	P54645
GenBank Nucleotide #	NM_019142.2
NCBI Official Full Name	5'-AMP-activated protein kinase catalytic subunit alpha-1
NCBI Official Synonym Full Names	protein kinase AMP-activated catalytic subunit alpha 1
NCBI Official Symbol	Prkaa1
NCBI Official Synonym Symbols	AMPKalpha1
UniProt Protein Name	5'-AMP-activated protein kinase catalytic subunit alpha-1
UniProt Synonym Protein Names	Acetyl-CoA carboxylase kinase (EC:2.7.11.27
UniProt Gene Name	Prkaa1
UniProt Synonym Gene Names	Ampk1; HMGCR kinase
NCBI Protein Information	5'-AMP-activated protein kinase catalytic subunit alpha-1
NCBI Summary for AMPK alpha 1	catalytic subunit of AMP-activated protein kinase; phosphorylates hepatic acetyl-CoA carboxylase and adipose hormone-sensitive lipase [RGD, Feb 2006]

UniProt Comments for AMPK alpha 1	Catalytic subunit of AMP-activated protein kinase (AMPK), an energy sensor protein kinase that plays a key role in regulating cellular energy metabolism. In response to reduction of intracellular ATP levels, AMPK activates energy-producing pathways and inhibits energy-consuming processes: inhibits protein, carbohydrate and lipid biosynthesis, as well as cell growth and proliferation. AMPK acts via direct phosphorylation of metabolic enzymes, and by longer-term effects via phosphorylation of transcription regulators. Also acts as a regulator of cellular polarity by remodeling the actin cytoskeleton; probably by indirectly activating myosin. Regulates lipid synthesis by phosphorylating and inactivating lipid metabolic enzymes such as ACACA, ACACB, GYS1, HMGCR and LIPE; regulates fatty acid and cholesterol synthesis by phosphorylating acetyl-CoA carboxylase (ACACA and ACACB) and hormone-sensitive lipase (LIPE) enzymes, respectively. Regulates insulin-signaling and glycolysis by phosphorylating IRS1, PFKFB2 and PFKFB3. AMPK stimulates glucose uptake in muscle by increasing the translocation of the glucose transporter SLC2A4/GLUT4 to the plasma membrane, possibly by mediating phosphorylation of TBC1D4/AS160. Regulates transcription and chromatin structure by phosphorylating transcription regulators involved in energy metabolism such as CRTC2/TORC2, FOXO3, histone H2B, HDAC5, MEF2C, MLXIPL/ChREBP, EP300, HNF4A, p53/TP53, SREBF1, SREBF2 and PPARGC1A. Acts as a key regulator of glucose homeostasis in liver by phosphorylating CRTC2/TORC2, leading to CRTC2/TORC2 sequestration in the cytoplasm. In response to stress, phosphorylates 'Ser-36' of histone H2B (H2BS36ph), leading to promote transcription. Acts as a key regulator of cell growth and proliferation by phosphorylating TSC2, RPTOR and ATG1/ULK1: in response to nutrient limitation, negatively regulates the mTORC1 complex by phosphorylating RPTOR component of the mTORC1 complex and by phosphorylating and activating TSC2. In response to nutrient limitation, promotes autophagy by phosphorylating and activating ATG1/ULK1. In response to nutrient limitation, phosphorylates transcription factor FOXO3 promoting FOXO3 mitochontrial import (). AMPK also acts as a regulator of circadian rhythm by mediating phosphorylation of CRY1, leading to destabilize it. May regulate the Wnt signaling pathway by phosphorylating CTNNB1, leading to stabilize it. Also has tau-protein kinase activity: in response to amyloid beta A4 protein (APP) exposure, activated by CAMKK2, leading to phosphorylation of MAPT/TAU; however the relevance of such data remains unclear in vivo. Also phosphorylates CFTR, EEF2K, KLC1, NOS3 and SLC12A1.
Research Articles on AMPK alpha 1	**1.** Together, these data indicate that novel nongenomic effects of STAT3 influence myocyte energy status and modulate AMPKalpha/mTOR signaling and autophagy to balance the transcriptional hypertrophic response to Ang II stimulation.
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