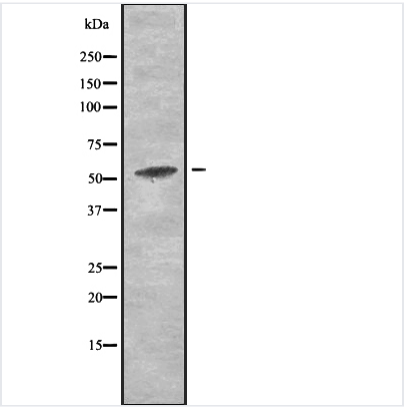
PRKAA2 Antibody

PRODUCT OVERVIEW

Product Name	PRKAA2, Antibody
Full Product Name	PRKAA2 Antibody
Product Gene Name	anti-PRKAA2 antibody
Molecular Weight	62,320 Da
OMIM	600497
3D Structure	ModBase 3D Structure for P54646
ISO Certification	Manufactured in an ISO 9001:2015 Certified Laboratory.
Related Product Information for anti-PRKAA2 antibody	MBS8517401 is an antibody targeting PRKAA2. Also known as PRKAA2 Antibody.
Other Notes	Small volumes of anti-PRKAA2 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.



Western Blot (WB) of anti-PRKAA2 antibody
Western blot analysis PRKAA2 using HuvEc whole cell lysates

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for PRKAA2. It may not necessarily be applicable to this product.

NCBI GI #	46877068
NCBI GeneID	5563
NCBI Accession #	NP_006243.2
UniProt Primary Accession #	P54646
UniProt Secondary Accession #	Q9H1E8; Q9UD43
UniProt Related Accession #	P54646
GenBank Nucleotide #	NM_006252.3
NCBI Official Full Name	5'-AMP-activated protein kinase catalytic subunit alpha-2

NCBI Official Synonym Full Names	protein kinase AMP-activated catalytic subunit alpha 2
NCBI Official Symbol	PRKAA2
NCBI Official Synonym Symbols	AMPK; AMPK2; PRKAA; AMPKa2
UniProt Protein Name	5'-AMP-activated protein kinase catalytic subunit alpha-2
UniProt Synonym Protein Names	Acetyl-CoA carboxylase kinase (EC:2.7.11.27
UniProt Gene Name	PRKAA2
UniProt Synonym Gene Names	AMPK; AMPK2; HMGCR kinase
NCBI Protein Information	5'-AMP-activated protein kinase catalytic subunit alpha-2
NCBI Summary for PRKAA2	The protein encoded by this gene is a catalytic subunit of the AMP-activated protein kinase (AMPK). AMPK is a heterotrimer consisting of an alpha catalytic subunit, and non-catalytic beta and gamma subunits. AMPK is an important energy-sensing enzyme that monitors cellular energy status. In response to cellular metabolic stresses, AMPK is activated, and thus phosphorylates and inactivates acetyl-CoA carboxylase (ACC) and beta-hydroxy beta-methylglutaryl-CoA reductase (HMGCR), key enzymes involved in regulating de novo biosynthesis of fatty acid and cholesterol. Studies of the mouse counterpart suggest that this catalytic subunit may control whole-body insulin sensitivity and is necessary for maintaining myocardial energy homeostasis during ischemia. [provided by RefSeq, Jul 2008]
UniProt Comments for PRKAA2	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. Involved in insulin receptor/INSR internalization (PubMed:25687571). 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. 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 phosphorylates CFTR, EEF2K, KLC1, NOS3 and SLC12A1. Plays an important role in the differential regulation of pro-autophagy (composed of PIK3C3, BECN1, PIK3R4 and UVRAG or ATG14) and non-autophagy (composed of PIK3C3, BECN1 and PIK3R4) complexes, in response to glucose starvation. Can inhibit the non-autophagy complex by phosphorylating PIK3C3 and can activate the pro-autophagy complex by phosphorylating BECN1 ().
Research Articles on PRKAA2	**1.** Lack of mitochondrial DNA impairs chemical hypoxia-induced autophagy in liver tumor cells through reactive oxygen species-AMPK-ULK1 signaling dysregulation independently of HIF-1A.
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