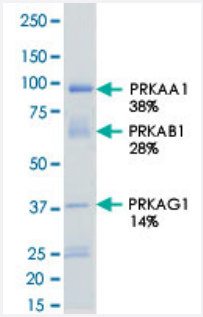
Bioactive Full-Length

PRKAA1/PRKAB1/PRKAG1 (Human) Recombinant Protein

Catalog # P5780 Size 5 ug

Applications



Result of activity analysis

Result of activity analysis

Specification

Product Description	Human PRKAA1 (NP_006242.4, 1 a.a.-550 a.a.)/PRKAB1 (NP_006244.2, 1 a.a. - 270 a.a.)/PRKAG1 (NP_002724.1, 1 a.a. - 331 a.a.) full length recombinant protein with GST tag expressed in Baculovirus infected Sf21 cells.
Host	insect
Theoretical MW (kDa)	90
Form	Liquid
Preparation Method	Baculovirus infected insect cell (Sf21) expression system
Purification	Glutathione sepharose chromatography

Purity	81 % by SDS-PAGE/CBB staining
Activity	The activity was measured by off-chip mobility shift assay. The enzyme was incubated with fluorescence-labeled substrate and Mg (or Mn)/ATP. The phosphorylated and unphosphorylated substrates were separated and detected by LabChip™3000. Substrate : SAMS peptide. ATP: 100 μM.
Quality Control Testing	SDS-PAGE Stained with Coomassie Blue
Storage Buffer	In 50 mM Tris-HCl, 150 mM NaCl, pH 7.5 (0.05% Brij35, 1 mM DTT, 10% glycerol)
Storage Instruction	Store at -80°C. Aliquot to avoid repeated freezing and thawing.
Note	Result of activity analysis Result of activity analysis

Applications

- Functional Study
- SDS-PAGE

Gene Info — PRKAA1

Entrez GeneID	5562
Protein Accession#	NP_006242.4 (Gene ID : 5562); NP_006244.2 (Gene ID : 5564); NP_002724.1 (Gene ID : 5571)
Gene Name	PRKAA1
Gene Alias	AMPK, AMPKa1, MGC33776, MGC57364
Gene Description	protein kinase, AMP-activated, alpha 1 catalytic subunit
Omim ID	602739
Gene Ontology	Hyperlink
Gene Summary	The protein encoded by this gene belongs to the ser/thr protein kinase family. It is the catalytic subunit of the 5'-prime-AMP-activated protein kinase (AMPK). AMPK is a cellular energy sensor conserved in all eukaryotic cells. The kinase activity of AMPK is activated by the stimuli that increase the cellular AMP/ATP ratio. AMPK regulates the activities of a number of key metabolic enzymes through phosphorylation. It protects cells from stresses that cause ATP depletion by switching off ATP-consuming biosynthetic pathways. Alternatively spliced transcript variants encoding distinct isoforms have been observed. [provided by RefSeq

Other Designations	5'-AMP-activated protein kinase, catalytic alpha-1 chain|AMP -activate kinase alpha 1 subunit|AMP-activated protein kinase, catalytic, alpha-1|AMPK alpha 1

Gene Info — PRKAB1

Entrez GeneID	5564
Protein Accession#	NP_006242.4 (Gene ID : 5562); NP_006244.2 (Gene ID : 5564); NP_002724.1 (Gene ID : 5571)
Gene Name	PRKAB1
Gene Alias	AMPK, HAMPKb, MGC17785
Gene Description	protein kinase, AMP-activated, beta 1 non-catalytic subunit
Omim ID	602740
Gene Ontology	Hyperlink
Gene Summary	The protein encoded by this gene is a regulatory 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. This subunit may be a positive regulator of AMPK activity. The myristoylation and phosphorylation of this subunit have been shown to affect the enzyme activity and cellular localization of AMPK. This subunit may also serve as an adaptor molecule mediating the association of the AMPK complex. [provided by RefSeq
Other Designations	5'-AMP-activated protein kinase beta-1 subunit|AMP-activated protein kinase beta 1 non-catalytic subunit|AMP-activated protein kinase beta subunit|AMPK beta -1 chain|AMPK beta 1|protein kinase, AMP-activated, noncatalytic, beta-1

Gene Info — PRKAG1

Entrez GeneID	5571
Protein Accession#	NP_006242.4 (Gene ID : 5562); NP_006244.2 (Gene ID : 5564); NP_002724.1 (Gene ID : 5571)
Gene Name	PRKAG1
Gene Alias	AMPKG, MGC8666
Gene Description	protein kinase, AMP-activated, gamma 1 non-catalytic subunit
Omim ID	602742

Gene Ontology	Hyperlink
Gene Summary	The protein encoded by this gene is a regulatory 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. This subunit is one of the gamma regulatory subunits of AMPK. Alternatively spliced transcript variants encoding distinct isoforms have been observed. [provided by RefSeq
Other Designations	5'-AMP-activated protein kinase, gamma-1 subunit|AMP-activated protein kinase, noncatalytic gamma-1 subunit|AMPK gamma-1 chain

Pathway

- Adipocytokine signaling pathway
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- Adipocytokine signaling pathway
- Hypertrophic cardiomyopathy (HCM)
- Hypertrophic cardiomyopathy (HCM)
- Hypertrophic cardiomyopathy (HCM)
- Insulin signaling pathway
- Insulin signaling pathway
- Insulin signaling pathway
- mTOR signaling pathway
- Regulation of autophagy

Disease

- Alzheimer disease
- Alzheimer disease
- Atherosclerosis
- Atherosclerosis

- Atherosclerosis
- Calcinosis
- Calcinosis
- Calcinosis
- Cardiovascular Diseases
- Cardiovascular Diseases
- Cardiovascular Diseases
- Colonic Neoplasms
- Coronary Artery Disease
- Coronary Artery Disease
- Coronary Artery Disease
- Diabetes Complications
- Diabetes Complications
- Diabetes Mellitus
- Diabetes Mellitus
- Diabetes Mellitus
- Drug Toxicity
- Drug Toxicity
- Drug Toxicity
- Edema
- Edema
- Edema
- Hypercholesterolemia
- Hypercholesterolemia
- Metabolic Syndrome X

- Metabolic Syndrome X
- Neoplasms
- Neoplasms
- Osteoporosis
- Osteoporosis
- Rectal Neoplasms