ARG51678
anti-AMPK alpha 1 phospho (Thr183) + AMPK alpha 2 phospho (Thr172) antibody

Package: 100 µl, 50 µl
Store at: -20°C

Summary

Product Description	Rabbit Polyclonal antibody recognizes AMPK alpha 1 phospho (Thr183) + AMPK alpha 2 phospho (Thr172)
Tested Reactivity	Hu, Ms, Rat
Tested Application	ICC/IF, IHC-P, WB
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Target Name	AMPK alpha 1 + AMPK alpha 2
Species	Human
Immunogen	Phosphospecific peptide around Thr183 of Human AMPK alpha 1. (Also around Thr172 of Human AMPK alpha 2) (L-R-T(p)-S-C)
Conjugation	Un-conjugated
Alternate Names	AMPK alpha 1: AMPK; Acetyl-CoA carboxylase kinase; ACACA kinase; EC 2.7.11.26; EC 2.7.11.31; 5'-AMP-activated protein kinase catalytic subunit alpha-1; EC 2.7.11.27; HMGCR kinase; Tau-protein kinase PRKAA1; EC 2.7.11.1; Hydroxymethylglutaryl-CoA reductase kinase; AMPKa1; AMPK subunit alpha-1 AMPK alpha 2: AMPK; Acetyl-CoA carboxylase kinase; ACACA kinase; 5'-AMP-activated protein kinase catalytic subunit alpha-2; EC 2.7.11.31; EC 2.7.11.27; HMGCR kinase; PRKAA; AMPK2; EC 2.7.11.1; AMPK subunit alpha-2; AMPKa2; Hydroxymethylglutaryl-CoA reductase kinase

Application Instructions

Application table

Application	Dilution
ICC/IF	1:50 - 1:200
IHC-P	1:100 - 1:300
WB	1:500 - 1:2000

Application Note: * The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist.

Properties

Form	Liquid
Purification	Antibodies were produced by immunizing rabbits with KLH-conjugated synthetic phosphopeptide. Antibodies were purified by affinity-chromatography using epitope-specific phosphopeptide. In addition, non-phospho specific antibodies were removed by chromatogramphy using non-phosphopeptide.

Buffer	PBS (without Mg2+ and Ca2+, pH 7.4), 150mM NaCl, 0.02% Sodium azide and 50% Glycerol.
Preservative	0.02% Sodium azide
Stabilizer	50% Glycerol
Concentration	1 mg/ml
Storage instruction	For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use.
Note	For laboratory research only, not for drug, diagnostic or other use.

Bioinformation

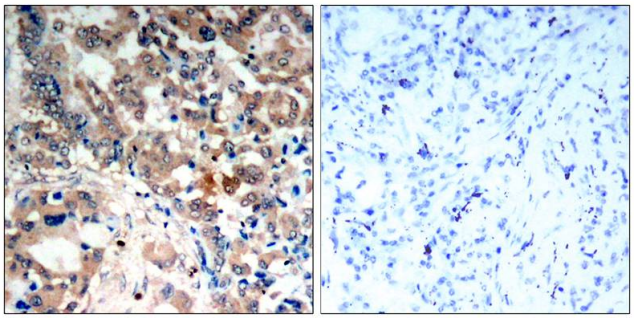
Gene Symbol	PRKAA1; PRKAA2
Gene Full Name	protein kinase AMP-activated catalytic subunit alpha 1 protein kinase AMP-activated catalytic subunit alpha 2
Background	AMPK alpha 1: The protein encoded by this gene belongs to the ser/thr protein kinase family. It is the catalytic subunit of the 5'-prime-AMP-activated 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, Jul 2008] AMPK alpha 2: 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]
Function	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. [UniProt]
Highlight	Related Antibody Duos and Panels: ARG30182 AMPK-ACC pathway Antibody Panel Related products: AMPK alpha antibodies; AMPK alpha Duos / Panels; Anti-Rabbit IgG secondary antibodies;
Research Area	Cancer antibody; Cell Biology and Cellular Response antibody; Metabolism antibody; Neuroscience antibody; Signaling Transduction antibody; AMPK-ACC pathway antibody
Calculated Mw	64 kDa
PTM	AMPK alpha 1: Ubiquitinated. Phosphorylated at Thr-183 by STK11/LKB1 in complex with STE20-related adapter-alpha (STRADA) pseudo kinase and CAB39. Also phosphorylated at Thr-183 by CAMKK2; triggered by a rise in intracellular calcium ions, without detectable changes in the AMP/ATP ratio. CAMKK1 can also phosphorylate Thr-183, but at a much lower level. Dephosphorylated by protein phosphatase 2A and 2C (PP2A and PP2C). Phosphorylated by ULK1 and ULK2; leading to negatively regulate AMPK activity and suggesting the existence of a regulatory feedback loop between ULK1, ULK2 and AMPK. Dephosphorylated by PPM1A and PPM1B. [UniProt] AMPK alpha 2: Ubiquitinated. Phosphorylated at Thr-172 by STK11/LKB1 in complex with STE20-related adapter-alpha (STRADA) pseudo kinase and CAB39. Also phosphorylated at Thr-172 by CAMKK2; triggered by a rise in intracellular calcium ions, without detectable changes in the AMP/ATP ratio. CAMKK1 can also phosphorylate Thr-172, but at

much lower level. Dephosphorylated by protein phosphatase 2A and 2C (PP2A and PP2C). Phosphorylated by ULK1; leading to negatively regulate AMPK activity and suggesting the existence of a regulatory feedback loop between ULK1 and AMPK. Dephosphorylated by PPM1A and PPM1B at Thr-172 (mediated by STK11/LKB1). [UniProt]

Cellular Localization

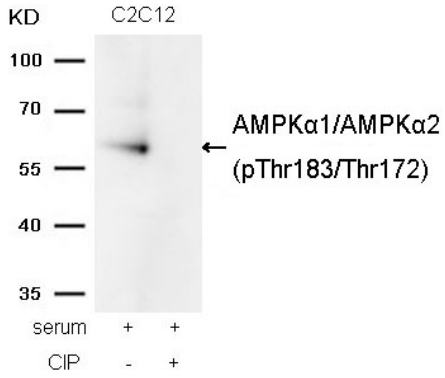
AMPK alpha 1 and 2: Cytoplasm. Nucleus. Note=In response to stress, recruited by p53/TP53 to specific promoters. [UniProt]

Images



ARG51678 anti-AMPK alpha 1 phospho (Thr183) + AMPK alpha 2 phospho (Thr172) antibody IHC-P image

Immunohistochemistry: Paraffin-embedded Human lung carcinoma tissue stained with ARG51678 anti-AMPK alpha 1 phospho (Thr183) + AMPK alpha 2 phospho (Thr172) antibody.



ARG51678 anti-AMPK alpha 1 phospho (Thr183) + AMPK alpha 2 phospho (Thr172) antibody WB image

Western blot: Extracts from C2C12 cells, treated with serum or calf intestinal phosphatase (CIP), stained with ARG51678 anti-AMPK alpha 1 phospho (Thr183) + AMPK alpha 2 phospho (Thr172) antibody.