ARG51172
anti-AMPK alpha 1 / 2 antibody

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

Summary

Product Description	Rabbit Polyclonal antibody recognizes AMPK alpha 1 / 2
Tested Reactivity	Hu, Ms, Rat
Tested Application	ICC/IF, IHC-P, WB
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Target Name	AMPK alpha 1 / 2
Species	Human
Immunogen	Peptide sequence around aa. 172~176/170~174 (L-R-T-S-C) derived from Human AMPKα1/AMPKα2.
Conjugation	Un-conjugated
Alternate Names	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	1:100 - 1:200
IHC-P	1:50 - 1:100
WB	1:500 - 1:1000

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

Properties

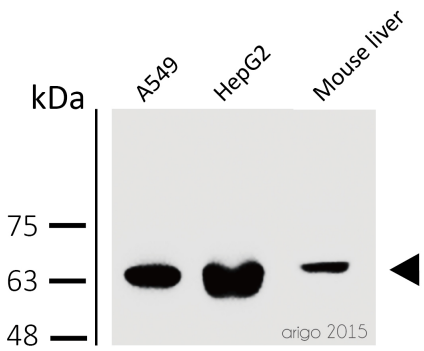
Form	Liquid
Purification	Antibodies were produced by immunizing rabbits with KLH-conjugated synthetic peptide. Antibodies were purified by affinity-chromatography using epitope-specific peptide.
Buffer	PBS (without Mg2+ and Ca2+, pH 7.4), 150mM NaCl, 0.02% Sodium azide and 50% Glycerol.
Preservative	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

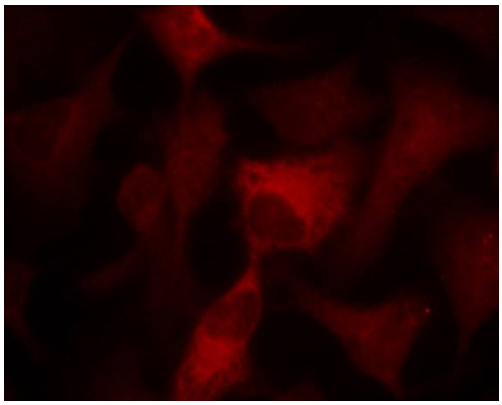
Gene Symbol	PRKAA2
Gene Full Name	protein kinase, AMP-activated, alpha 2 catalytic subunit
Background	Responsible for the regulation of fatty acid synthesis by phosphorylation of acetyl-CoA carboxylase. It also regulates cholesterol synthesis via phosphorylation and inactivation of hormone-sensitive lipase and hydroxymethylglutaryl-CoA reductase. Appears to act as a metabolic stress-sensing protein kinase switching off biosynthetic pathways when cellular ATP levels are depleted and when 5'-AMP rises in response to fuel limitation and/or hypoxia. This is a catalytic subunit.
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. 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. [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	62 kDa
PTM	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).

Images



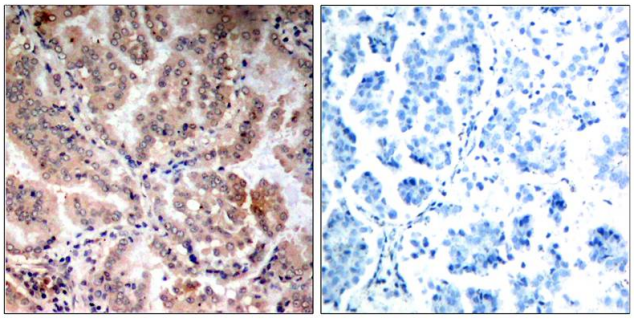
ARG51172 anti-AMPK alpha 1/2 antibody WB image

Western blot: 30 µg of A549, HepG2, and Mouse liver cell line lysates stained with ARG51172 anti-AMPK alpha 1/2 antibody at 1:500 dilution.



ARG51172 anti-AMPK alpha 1/2 antibody ICC/IF image

Immunofluorescence: methanol-fixed HeLa cells stained with ARG51172 anti-AMPK alpha 1/2 antibody.



ARG51172 anti-AMPK alpha 1/2 antibody IHC-P image

Immunohistochemistry: Paraffin-embedded Human breast carcinoma tissue stained with ARG51172 anti-AMPK alpha 1/2 antibody (left) or the same antibody preincubated with blocking peptide (right).