

### Product datasheet

info@arigobio.com

# ARG41612 anti-AMPK alpha 1 phospho (Ser496) antibody

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

#### **Summary**

Product Description Rabbit Polyclonal antibody recognizes AMPK alpha 1 phospho (Ser496)

Tested Reactivity Hu, Ms, Rat

Tested Application ICC/IF, IHC-P, WB

Host Rabbit

**Clonality** Polyclonal

Isotype IgG

Target Name AMPK alpha 1

Species Human

Immunogen Phosphospecific peptide around Ser496 (S-G-S(P)-V-S) of Human AMPK alpha 1.

Conjugation Un-conjugated

Alternate Names 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

#### **Application Instructions**

Application	Dilution
ICC/IF	1:100 - 1:200
IHC-P	1:50 - 1:100
WB	1:500 - 1:1000
* The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist.	
HUVEC + UV	
~ 64 kDa	
	ICC/IF IHC-P WB * The dilutions indicate recommshould be determined by the sci

#### **Properties**

Form

Purification	Affinity purification with phospho-specific peptide and the non-phospho specific antibodies were

romoved by chromatography using non-phosphonoutide

 $removed\ by\ chromatography\ using\ non-phosphopeptide.$ 

Buffer PBS (without Mg2+ and Ca2+, pH 7.4), 150 mM NaCl, 0.02% Sodium azide and 50% Glycerol.

Preservative 0.02% Sodium azide

Liquid

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

Gene Full Name

protein kinase, AMP-activated, alpha 1 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. 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 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. [UniProt]

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

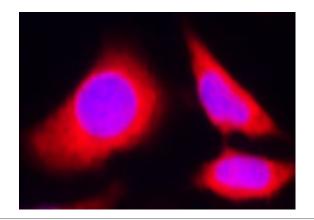
PTM

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]

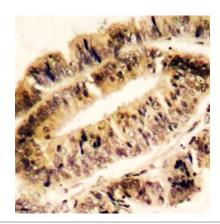
Cellular Localization

Cytoplasm. Nucleus. Note=In response to stress, recruited by p53/TP53 to specific promoters. [UniProt]



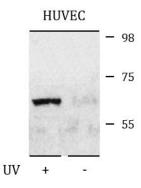
## ARG41612 anti-AMPK alpha 1 phospho (Ser496) antibody ICC/IF image

Immunofluorescence: Methanol-fixed HeLa cells stained with ARG41612 anti-AMPK alpha 1 phospho (Ser496) antibody.



### ARG41612 anti-AMPK alpha 1 phospho (Ser496) antibody IHC-P image

Immunohistochemistry: Paraffin-embedded Human colon carcinoma tissue stained with ARG41612 anti-AMPK alpha 1 phospho (Ser496) antibody.



#### ARG41612 anti-AMPK alpha 1 phospho (Ser496) antibody WB image

Western blot: HUVEC cells treated with UV (left) or untreated (right). Cell lysates were stained with ARG41612 anti-AMPK alpha 1 phospho (Ser496) antibody.