

PE anti-AMPK α Phospho (Thr172) Antibody

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|--------------------------|---|
| Catalog# / Size | 600657 / 25 tests 600658 / 100 tests |
| Clone | A20017A |
| Regulatory Status | RUO |
| Other Names | PRKAA1, PRKAA2, AMPK α 1, AMPK α 2, AMPK, ACACA Kinase, Tau-Protein Kinase PRKAA1, Tau-Protein Kinase PRKAA2, Protein kinase AMP-Activated, Alpha 1 Catalytic Subunit, HMGCR Kinase |
| Isotype | Mouse IgG1, κ |
| Description | AMP-activated protein kinase alpha (AMPK α) is one subunit of the $\alpha\beta\gamma$ heterotrimeric protein complex AMPK. It is a key regulator of metabolism and energy homeostasis in eukaryotes through induction of catabolic pathways and deactivation of anabolic. As an inhibitor of mammalian target of rapamycin complex 1 (mTORC1) pathway, AMPK α is involved in the regulation of cellular growth, cell cycle progression, autophagy, and may play dual roles as both tumor suppressor and promotor. AMPK α is activated via phosphorylation of Threonine residue 172 (Thr172) within the activation loop of the α subunit and is promoted by the allosteric binding of AMP and/or ADP to AMPK's γ subunit. This phosphorylation is mediated by the serine/threonine kinase liver kinase B1 (LKB1) in conjunction with accessory subunits STRAD and MO25 and also by calcium/calmodulin-dependent protein kinase kinase 2 (CAMKK2 aka CAMKK β). Activation is induced by increases in cellular AMP:ATP and ADP:ATP ratios following a decline in ATP levels as well as by cellular stress, DNA damage, glucose starvation, and fluxes in calcium and nutrient levels. Localization of AMPK α Thr172 at the spindle poles suggests a novel role for AMPK in mitotic spindle orientation. AMPK α is a key therapeutic target in the treatment of metabolic disorders and an emerging potential treatment target for cancer. |

Product Details

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| Verified Reactivity | Human, Mouse |
| Antibody Type | Monoclonal |
| Host Species | Mouse |
| Immunogen | Synthetic peptide of human AMPK alpha phosphorylated at Thr172 |
| Formulation | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and BSA (origin USA) |
| Preparation | The antibody was purified by affinity chromatography and conjugated with PE under optimal conditions. |
| Concentration | Lot-specific (to obtain lot-specific concentration and expiration, please enter the lot number in our Certificate of Analysis online tool.) |
| Storage & Handling | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze. |
| Application | ICFC - Quality tested |
| Recommended Usage | Each lot of this antibody is quality control tested by intracellular flow cytometry using our TruePhos™ Perm Buffer in Cell Suspensions Protocol. For flow cytometric staining, the suggested use of this reagent is 5 μ L per million cells in 100 μ L staining volume or 5 μ L per 100 μ L of whole blood. It is recommended that the reagent be titrated for optimal performance for each application. |
| Excitation Laser | Blue Laser (488 nm) Green Laser (532 nm)/Yellow-Green Laser (561 nm) |
| Application Notes | For use of this antibody in intracellular flow cytometry (ICFC), we recommend TruePhos™ Perm Buffer (Cat. No. 425401) for fixation and permeabilization |

RRID AB_3699060 (BioLegend Cat. No. 600657)
AB_3699060 (BioLegend Cat. No. 600658)

Antigen Details

Structure AMPK α is a 552 amino acid protein with a predicted molecular weight of 63 kD.

Distribution Heart, Skeletal muscle, Kidney / Nucleus and cytoplasm

Function Serine/threonine-protein kinase, transcription regulation, Wnt signaling, metabolism

Ligand/Receptor ATP-binding, magnesium, Metal-binding, Nucleotide-binding

Biology Area Cell Biology, Signal Transduction

Molecular Family Phospho-Proteins, Protein Kinases/Phosphatase

Antigen References

1. Mihaylova MM, *et al.* 2011. *Nat Cell Biol* 13:1016-23.
2. Stein SC, *et al.* 2000. *Biochem J.* 345:437-43.
3. Thaiparambil JT, *et al.* 2012. *Mol Cell Biol.* 16:3203-17.
4. Vara-Ciruelos D, *et al.* 2019. *Open Biol.* 9:190099.
5. Willows R, *et al.* 2017. *Biochem J.* 474:3059-3073.

Gene ID [5563](#)
[5562](#)

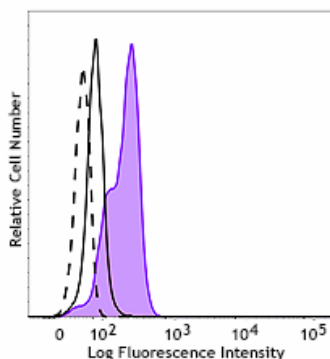
Related Protocols

- [Intracellular Staining With True-Phos™ Perm Buffer in Cell Suspensions Protocol](#)

Other Formats

Purified anti-AMPK α Phospho (Thr172), Alexa Fluor® 488 anti-AMPK α Phospho (Thr172), Alexa Fluor® 647 anti-AMPK α Phospho (Thr172), PE anti-AMPK α Phospho (Thr172) Antibody

Product Data



Serum starved HEK293 cells untreated (negative control, open histogram) or treated with Oligomycin (positive control, filled histogram) to induce AMPK α phosphorylation at threonine 172 by inhibiting ATP synthesis. Cells were fixed and permeabilized using True-Phos™ Perm Buffer (Cat. No. 425401) and intracellularly stained with PE anti-AMPK α Phospho (Thr172) (clone A20017A), or PE Mouse IgG1, κ Isotype Control (open histogram, dashed line) (Cat No. 400112).

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