abcam

ab32508

Anti-AMPK gamma 1 antibody [Y308]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	Y308
Purification technique	Affinity purification Protein A
Specificity	This antibody recognises 5'-AMP-activated protein kinase (AMPK).
Concentration	0.101 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Not recommended

Species	Human, Mouse, Rat, African green monkey
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat, African green monkey
Dilution info	-
Notes	-

IHC

Not recommended

Species	Human, Mouse, Rat, African green monkey
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	African green monkey
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat, African green monkey
Dilution info	-
Notes	-

Target data

See full target information PRKAG1

Function

AMP/ATP-binding subunit of AMP-activated protein kinase (AMPK), an energy sensor protein kinase that plays a key role in regulating cellular energy metabolism (PubMed:21680840, PubMed:24563466). 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 (PubMed:21680840, PubMed:24563466). AMPK acts via direct phosphorylation of metabolic enzymes, and by longer-term effects via phosphorylation of transcription regulators (PubMed:21680840, PubMed:24563466). Also acts as a regulator of cellular polarity by remodeling the actin cytoskeleton; probably by indirectly activating myosin (PubMed:21680840, PubMed:24563466). Gamma non-catalytic subunit mediates binding to AMP, ADP and ATP, leading to activate or inhibit AMPK: AMP-binding results in allosteric activation of alpha catalytic subunit (PRKAA1 or PRKAA2) both by inducing phosphorylation and preventing dephosphorylation of catalytic subunits (PubMed:21680840, PubMed:24563466). ADP also stimulates phosphorylation, without stimulating already phosphorylated catalytic subunit (PubMed:21680840, PubMed:24563466). ATP promotes dephosphorylation of catalytic subunit, rendering the AMPK enzyme inactive (PubMed:21680840, PubMed:24563466).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

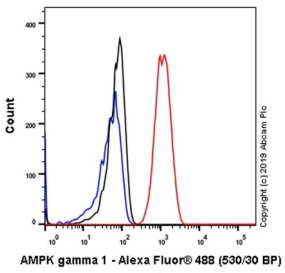
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

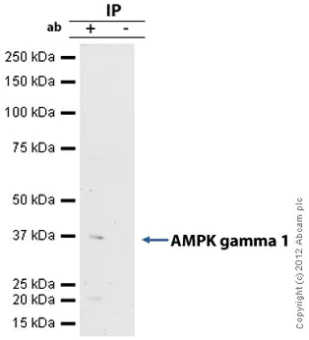
7 product images



Flow Cytometry (Intracellular) - Anti-AMPK gamma 1 antibody [Y308] (ab32508)

AMPK gamma 1 Flow Cytometry (Intracellular) staining using rabbit Anti-AMPK gamma 1 antibody

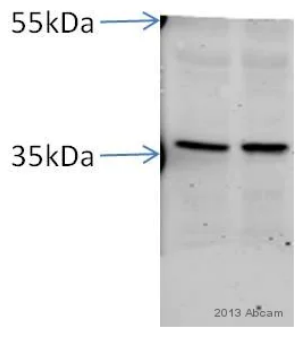
Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling AMPK gamma 1 with ab32508 at 1/100 dilution (1µg) (Red). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody. Cells were fixed with4% paraformaldehyde. Rabbit monoclonal IgG (ab172730) was used as isotype control (Black). Unlabelled control: Cells without incubation with primary antibody and secondary antibody (Blue).



Immunoprecipitation - Anti-AMPK gamma 1 antibody [Y308] (ab32508)

AMPK gamma 1 was immunoprecipitated using 1 mg Jurkat whole cell extract, 0.2 ug of Rabbit monoclonal [Y308] to AMPK gamma 1and 50µl of protein G magnetic beads (lane 1). The antibody was incubated with the Protein G beads for 10min under agitation. No antibody was added to the control (lane 2). Jurkat whole cell extractdiluted in RIPA buffer was added to each sample and incubated for 10min under agitation. Proteins were eluted by addition of 40µl SDS loading buffer and incubated for 10min at 70ºC; 10µl of each sample was separated on a SDS PAGE gel, transferred to a nitrocellulose membrane, blocked with 5% BSA and probed with ab32508. Secondary: Mouse monoclonal [SB62a] Secondary Antibody to Rabbit IgG light chain (HRP) (ab99697). Bands: 37kDa: AMPK gamma 1.
All lanes:
Immunoprecipitation - Anti-AMPK gamma 1 antibody [Y308] (ab32508)

Predicted band size: 38 kDa



This image is courtesy of an anonymous customer

Western blot - Anti-AMPK gamma 1 antibody [Y308] (ab32508)

All lanes:
Western blot - Anti-AMPK gamma 1 antibody [Y308] (ab32508) at 1/1000 dilution

All lanes:
HEK293 whole cell lysate at 30 µg

Secondary

All lanes:
Alexa Fluor® 690-conjugated Goat anti-rabbit IgG polyclonal at 1/10000 dilution

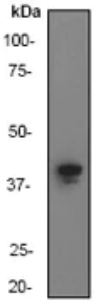
review

Performed under reducing conditions.

Predicted band size: 38 kDa

Observed band size: 38 kDa

Exposure time: 5min



Western blot - Anti-AMPK gamma 1 antibody [Y308] (ab32508)

All lanes:
Western blot - Anti-AMPK gamma 1 antibody [Y308] (ab32508) at 1/1000 dilution

All lanes:
Jurkat cell lysate

Predicted band size: 38 kDa

Observed band size: 38 kDa

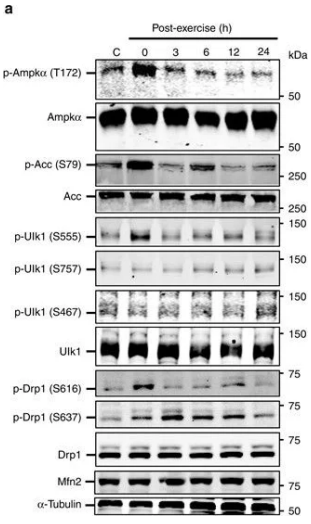


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Western blot - Anti-AMPK gamma 1 antibody [Y308] (ab32508)

AMPK gamma 1 Western blot staining using rabbit Anti-AMPK gamma 1 antibody

Western Blotting using Anti-AMPK gamma 1 antibody [Y308], ab32508. Publication image from Yan, Z. et al., 2017, Nat Commun, 28916822. Legend direct from paper.

Ampk, Ulk1 and Drp1, are transiently activated immediately following acute exercise. Ampk and its substrate Acc are phosphorylated at Thr172 a, b and S79 a, c, respectively, immediately after the cessation of exercise and return to baseline values by 3 h post-exercise in C57BL/6 J mice aged 10–12 weeks. Ulk1 is phosphorylated at Ser555, but not Ser467 or Ser757, immediately following acute exercise, which returns to basal levels by 3 h post-exercise a, d–f. Drp1 is phosphorylated in skeletal muscle at Ser616 a, g immediately after the cessation of exercise and Ser637 a, h reaching significance 3 and 6 h after exercise. Mfn2 protein abundance is unchanged following acute treadmill running a, i. Representative western blots are shown a and all quantification is presented as protein phosphorylation to total protein abundance ratio b–f. Data presented as mean ± standard error of the mean. n = 5 (except 24 h, n = 4). See also Supplementary Figs. 6 and 7. Results of one-way ANOVAs are *p < 0.05, **p < 0.01. F = 6.44 for b, F = 3.56 for c, F = 6.50 for d, F = 0.89 for e, F = 0.33 for f, F = 3.34 for g, F = 2.76 for h, F = 0.31 i. DF = 5. p-Ampk (T172/Total) b was sqrt transformed to account for unequal variance., DF = 5. S637/total Drp1 data was log transformed to account for unequal variance

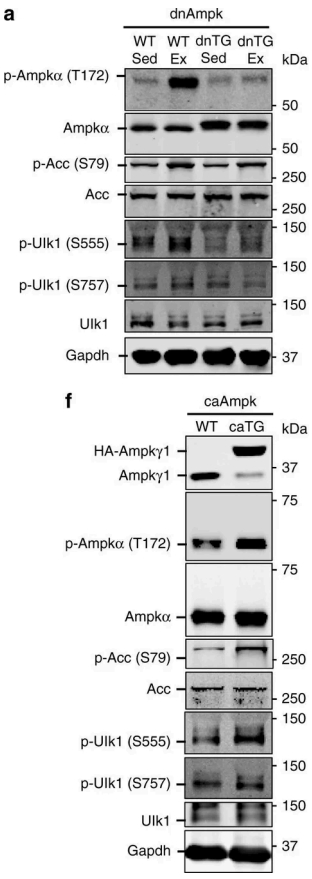


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Ampk is necessary and sufficient for phosphorylation of Ulk1 at Ser555 in response to acute exercise. Phosphorylation of Ampk at T172 in response to acute exercise is blocked in Ampk dnTG a, b, whereas increased phosphorylation of Acc at Ser79 post-exercise is still observed a, c. In Ampk caTG mice, both T172 Ampk and S79 Acc are elevated in sedentary conditions f–h. Phosphorylation of Ulk1 at Ser555 is blunted in dnTG skeletal muscle immediately after acute exercise a, d but elevated in caTG mice basally f, i. There was no effect on S757 phosphorylation in either dnTG mice post exercise a, e or sedentary caTG mice (f, j). Representative western blots are shown for dnTG mice a and caTG mice f. See also Supplementary Figs. 8 and 9. All quantification is presented as protein phosphorylation to total protein abundance ratio b–e, g–j. Data are presented as mean ± standard error of the mean. For dnTG study n = 10 WT or 5–7 dnTG (12–13 weeks). Results of two-way ANOVAs are *p < 0.05, **p < 0.01 for sedentary vs. exercise comparisons, F = 4.57 and DF = 1 c. ###p < 0.001 for between group comparisons, F = 14.03 and DF = 1 (e). Tukey multiple comparison tests were performed when a significant interaction effect was observed, in which *p < 0.05, **p < 0.01 for WT sedentary vs. WT exercise comparisons and $$p < 0.01, $$$p < 0.001 for WT exercise vs. dnTG exercise comparisons, DF = 27. For caTG study n = 3 (WT) or 5 (caTG) (13–15 weeks). Results of two-tailed t-tests are *p < 0.05 and **p < 0.01 for WT to caTG comparisons, t = 4.94 (g), t = 2.57 (h), t = 2.71 (i), t = 1.72 (j), DF = 6

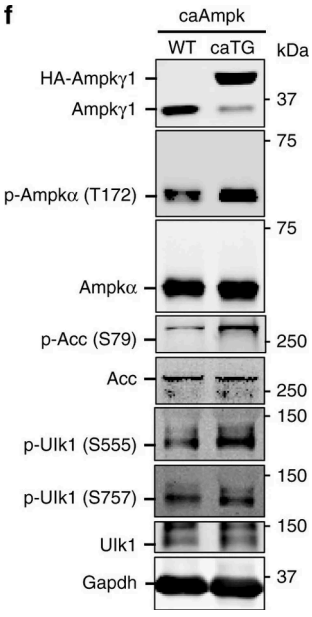


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