AMPK beta 1 monoclonal antibody

Catalog: MB66561 Host: Mouse Reactivity: Human, Mouse, Rat, Monkey

BackGround:

AMP-activated protein kinase (AMPK) is highly conserved from yeast to plants and animals and plays a key role in the regulation of energy homeostasis. AMPK is a heterotrimeric complex composed of a catalytic α subunit and regulatory β and γ subunits, each of which is encoded by two or three distinct genes (α1, 2; β1, 2; γ1, 2, 3). The kinase is activated by an elevated AMP/ATP ratio due to cellular and environmental stress, such as heat shock, hypoxia, and ischemia. The tumor suppressor LKB1, in association with accessory proteins STRAD and MO25, phosphorylates AMPKα at Thr172 in the activation loop, and this phosphorylation is required for AMPK activation. AMPKα is also phosphorylated at Thr258 and Ser485 (for α1; Ser491 for α2). The upstream kinase and the biological significance of these phosphorylation events have yet to be elucidated. The β1 subunit is post-translationally modified by myristoylation and multi-site phosphorylation including Ser24/25, Ser96, Ser101, Ser108, and Ser182. Phosphorylation at Ser108 of the β1 subunit seems to be required for AMPK activation, while phosphorylation at Ser24/25 and Ser182 affects AMPK localization. Several mutations in AMPKγ subunits have been identified, most of which are located in the putative AMP/ATP binding sites (CBS or Bateman domains). Mutations at these sites lead to reduction of AMPK activity and cause glycogen accumulation in heart or skeletal muscle. Accumulating evidence indicates that AMPK not only regulates the metabolism of fatty acids and glycogen, but also modulates protein synthesis and cell growth through EF2 and TSC2/mTOR pathways, as well as blood flow via eNOS/nNOS.

Product:

Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.02% sodium azide, pH 7.3.

Molecular Weight:

~ 38 kDa

Swiss-Prot:

Q9Y478

Purification&Purity:

The antibody was purified by immunogen affinity chromatography.

Applications:

WB (1/500 - 1/1000), IHC (1/50 - 1/100), IF/ICC (1/50 - 1/100), IP (1/10 - 1/50)

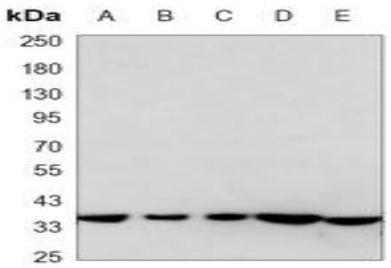
Storage&Stability:

Store at 4℃ short term. Aliquot and store at -20℃ long term. Avoid freeze-thaw cycles.

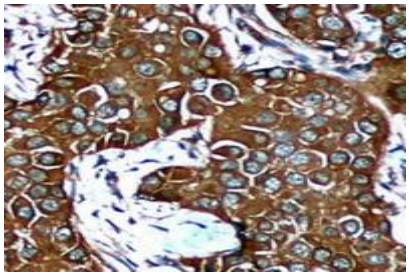
Specificity:

Recognizes endogenous levels of AMPK beta 1 protein.

DATA:



Western blot analysis of AMPK beta 1 expression in NIH3T3 (A), Hela (B), PC12 (C), COS7 (D), MDAMB468 (E) whole cell lysates.



Immunohistochemical analysis of AMPK beta 1 staining in human breast carcinoma formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.33). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated

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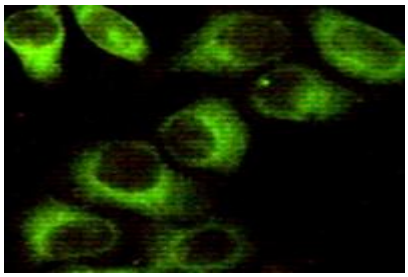
compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Immunofluorescent analysis of AMPK beta 1 staining in HeLa cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 ℃ in a hidified chamber. Cells were washed with PBST and incubated with a AF488-conjugated sec-ondary antibody (green) in PBS at room temperature in the dark.

Note:

For research use only, not for use in diagnostic procedure.

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