



E91229

PRKAA1 Polyclonal Antibody

Catalog Number: E91229

Amount: 100ul

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 (1). 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 (α 1, 2; β 1, 2; γ 1, 2, 3) (2). The kinase is activated by an elevated AMP/ATP ratio due to cellular and environmental stress, such as heat shock, hypoxia, and ischemia (1). The tumor suppressor LKB1, in association with accessory proteins STRAD and MO25, phosphorylates AMPK α at Thr172 in the activation loop, and this phosphorylation is required for AMPK activation (3-5). AMPK α is also phosphorylated at Thr258 and Ser485 (for α 1; Ser491 for α 2). The upstream kinase and the biological significance of these phosphorylation events have yet to be elucidated (6). The β 1 subunit is post-translationally modified by myristoylation and multi-site phosphorylation including Ser24/25, Ser96, Ser101, Ser108, and Ser182 (6,7). Phosphorylation at Ser108 of the β 1 subunit seems to be required for the activation of AMPK enzyme, while phosphorylation at Ser24/25 and Ser182 affects AMPK localization (7). Several mutations in AMPK γ 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 (1,2). 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 (1).

Species: Rabbit

Isotype: IgG

Storage/Stability: Store at -20oC or -80oC. Avoid freeze / thaw cycles. Buffer: PBS with 0.02% sodium azide, 50% glycerol, pH7.3.

Synonyms: PRKAA1;AMPK;AMPK α 1;MGC33776;MGC57364 ;

Immunogen: Recombinant protein of human PRKAA1

Purification: Affinity purification

Reactivity: H M R

Applications: WB IHC

Molecular Weight: 63kDa

Swiss-Prot No. : Q13131

Gene ID: 5562

References: 1. Hardie, D.G. (2004) J Cell Sci 117, 5479-87. 2. Carling, D. (2004) Trends Biochem Sci 29, 18-24. 3. Hawley, S.A. et al. (1996) J Biol Chem 271, 27879-87. 4. Lizcano, J.M. et al. (2004) EMBO J 23, 833-43. 5. Shaw, R.J. et al. (2004) Proc Natl Acad Sci USA 101, 3329-35. 6. Woods, A. et al. (2003) J Biol Chem 278, 28434-42. 7. Warden, S.M. et al. (2001) Biochem J 354, 275-83.

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