

# AMPK and ACC Antibody Sampler Kit

Cat# AK0114

Upon receipt, store at -20°C. Avoid freeze/thaw cycles.

## PRODUCT DESCRIPTION

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  $\alpha$  subunit and regulatory  $\beta$  and  $\gamma$  subunits, each of which is encoded by two or three distinct genes ( $\alpha$  1, 2;  $\beta$  1, 2;  $\gamma$  1, 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 AMPK  $\alpha$  at Thr172 in the activation loop and this phosphorylation is required for AMPK activation. AMPK  $\alpha$  is also phosphorylated at Thr258 and Ser485 (for  $\alpha$  1; Ser491 for  $\alpha$  2). The upstream kinase and biological significance of these phosphorylation events have yet to be elucidated. The  $\beta$  1 subunit is post-translationally modified by myristoylation and multi-site phosphorylation including Ser24/25, Ser96, Ser101 and Ser182. Phosphorylation at Ser108 of the  $\beta$  1 subunit seems to be required for the activation of AMPK enzyme, while phosphorylation of Ser24/25 and Ser182 affects AMPK localization. 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. Acetyl-CoA carboxylase (ACC) catalyzes the pivotal step of the fatty acid synthesis pathway. The 265 kDa ACC  $\alpha$  is the predominant isoform found in liver, adipocytes and mammary gland, while the 280 kDa ACC  $\beta$  is the major isoform in skeletal muscle and heart. Phosphorylation by AMPK at Ser79 or by PKA at Ser1200 inhibits the enzymatic activity of ACC. ACC is a potential target of anti-obesity drugs.

## PRODUCT INCLUDES

Cat No.	Product name	Quantity	Applications	Reactivity	Host
A340425	AMPK alpha1/2 Polyclonal Antibody	20 $\mu$ L	WB, IHC, ELISA	Human, Mouse, Rat, Monkey	Rabbit
A340323	Phospho-AMPK alpha1/2 (Thr183/172) Polyclonal Antibody	20 $\mu$ L	WB, IHC, ELISA	Human, Mouse, Rat, Monkey	Rabbit

<b>A340426</b>	AMPK beta1 Polyclonal Antibody	20µL	WB, IHC, ELISA	Human, Mouse, Rat, Monkey	Rabbit
<b>A340191</b>	Phospho-AMPK beta1 (Ser182) Polyclonal Antibody	20µL	WB, IHC, ELISA	Human, Mouse, Rat	Rabbit
<b>A340380</b>	Phospho-ACACA (Ser80) Polyclonal Antibody	20µL	WB, IHC-p, ELISA	Human, Mouse, Rat	Rabbit
<b>A340416</b>	ACACA Polyclonal Antibody	20µL	WB, IHC, ELISA	Human, Mouse, Rat	Rabbit
<b>A1013s</b>	Goat Anti-Rabbit IgG (H+L) (peroxidase/HRP conjugated)	120µL	WB, ELISA	Rabbit	Goat

## **PRODUCT USE LIMITATION**

These products are intended for research use only.