#12063 Store at -20°C

AMPKβ1 Antibody

☑ 100 µl
(10 western blots)

Cell Signaling TECHNOLOGY®

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New 12/12

For Research Use Only. Not For Use In Diagnostic Procedures.

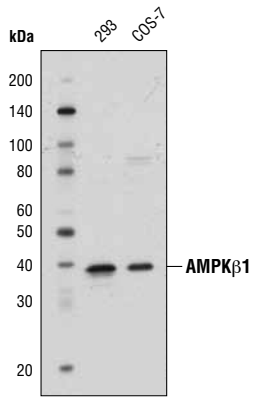
Entrez-Gene ID #5564
Swiss-Prot Acc. #Q9Y478

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IP Endogenous	H, M, Mk	38 kDa	Rabbit**

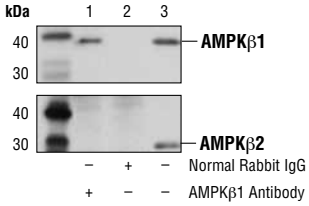
Background: AMP-activated protein kinase (AMPK) is highly conserved from yeast to plants and animals and plays a key role in the regulation of energy homeostasis (1). AMPK is a heterotrimeric complex composed of a catalytic α subunit and regulatory β and γ subunits, each of which is encoded by two or three distinct genes (α1, 2; β1, 2; γ1, 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 AMPKα at Thr172 in the activation loop, and this phosphorylation is required for AMPK activation (3-5). 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 (6). The β1 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 β1 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 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 (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).

Specificity/Sensitivity: AMPKβ1 Antibody detects endogenous levels of total AMPKβ1 protein. The antibody does not cross-react with AMPKβ2.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the amino-terminal residues of human AMPKβ1 protein. Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of extracts from 293 and COS-7 cells using AMPKβ1 Antibody.



Immunoprecipitation of AMPKβ1 from COS-7 cell extracts using Normal Rabbit IgG #2729 (lane 2) or AMPKβ1 Antibody (lane 1). Lane 3 is 10% input. Western blot analysis was performed using AMPKβ1 Antibody (upper) or AMPKβ2 Antibody #4148 (lower).

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. *Do not aliquot the antibody.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000
Immunoprecipitation	1:50

For product specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended complementary products.

Background 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.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.