AMPKγ2
Antibody

Cell Signaling
T E C H N O L O G Y®

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

Entrez-Gene ID #51422
Swiss-Prot Acc. #Q9UGJ0

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W	H, M, R, Mk, B	75 kDa	Rabbit**
Endogenous			

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

For application 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 companion products.

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: AMPKγ2 Antibody detects endogenous levels of total AMPKγ2 protein.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser60 of human AMPK-gamma2. Antibodies are purified by protein A and peptide affinity chromatography.
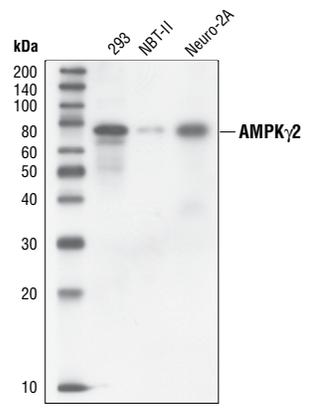
Western blot analysis of extracts from 293 (human), NBT-II (rat) and Neuro-2A (mouse) cells, using AMPKγ2 Antibody.

Background References:

(1) Hardie, D.G. (2004) *J. Cell Sci.* 117, 5479–5487.

(2) Carling, D. (2004) *Trends Biochem. Sci.* 29, 18–24.

(3) Hawley, S.A. et al. (1996) *J. Biol. Chem.* 271, 27879–27887.

(4) Lizcano, J.M. et al. (2004) *EMBO J.* 23, 833–843.

(5) Shaw, R. et al. (2004) *Proc. Natl. Acad. Sci. USA* 101, 3329–3335.

(6) Woods, A. et al. (2003) *J. Biol. Chem.* 278, 28434–28442.

(7) Warden, S.M. et al. (2001) *Biochem. J.* 354, 275–283.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% 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.