

# AMPK $\beta$ 1 (G-20): sc-19133

## BACKGROUND

AMPK (for 5'-AMP-activated protein kinase) is a heterotrimeric complex comprising a catalytic  $\alpha$  subunit and regulatory  $\beta$  and  $\gamma$  subunits. It protects cells from stresses that cause ATP depletion by switching off ATP-consuming biosynthetic pathways. AMPK is activated by high AMP and low ATP through a mechanism involving allosteric regulation, promotion of phosphorylation by an upstream protein kinase known as AMPK kinase, and inhibition of dephosphorylation. Activated AMPK can phosphorylate and regulate *in vivo* hydroxymethylglutaryl-CoA reductase and acetyl-CoA carboxylase, which are key regulatory enzymes of sterol synthesis and fatty acid synthesis, respectively. The human AMPK $\alpha$ 1 and AMPK $\alpha$ 2 genes encode 548 amino acid and 552 amino acid proteins, respectively. Human AMPK $\beta$ 1 encodes a 271 amino acid protein and human AMPK $\beta$ 2 encodes a 272 amino acid protein. The human AMPK $\gamma$ 1 gene encodes a 331 amino acid protein. Human AMPK $\gamma$ 2 and AMPK $\gamma$ 3, which are 569 and 492 amino acid proteins, respectively, contain unique N-terminal domains and may participate directly in the binding of AMP within the AMPK complex.

## REFERENCES

1. Stapleton, D., et al. 1996. Mammalian AMP-activated protein kinase subfamily. *J. Biol. Chem.* 271: 611-614.
2. Stapleton, D., et al. 1997. AMP-activated protein kinase isoenzyme family: subunit structure and chromosomal location. *FEBS Lett.* 409: 452-456.
3. Hardie, D.G., et al. 1997. The AMP-activated protein kinase—fuel gauge of the mammalian cell? *Eur. J. Biochem.* 246: 259-273.
4. Thornton, C., et al. 1998. Identification of a novel AMP-activated protein kinase  $\beta$  subunit isoform that is highly expressed in skeletal muscle. *J. Biol. Chem.* 273: 12443-12450.
5. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 602739. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: PRKAB1 (human) mapping to 12q24.23; Prkab1 (mouse) mapping to 5 F.

## SOURCE

AMPK $\beta$ 1 (G-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of AMPK $\beta$ 1 of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-19133 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

AMPK $\beta$ 1 (G-20) is recommended for detection of AMPK $\beta$ 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

AMPK $\beta$ 1 (G-20) is also recommended for detection of AMPK $\beta$ 1 in additional species, including equine, canine, bovine, porcine and avian.

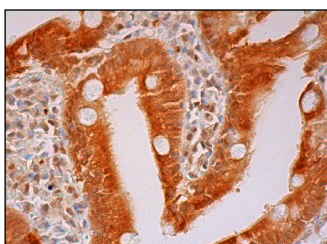
Suitable for use as control antibody for AMPK $\beta$ 1 siRNA (h): sc-38925, AMPK $\beta$ 1 siRNA (m): sc-38926, AMPK $\beta$ 1 shRNA Plasmid (h): sc-38925-SH, AMPK $\beta$ 1 shRNA Plasmid (m): sc-38926-SH, AMPK $\beta$ 1 shRNA (h) Lentiviral Particles: sc-38925-V and AMPK $\beta$ 1 shRNA (m) Lentiviral Particles: sc-38926-V.

Molecular Weight of AMPK $\beta$ 1: 38 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz<sup>™</sup>: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

## DATA



AMPK $\beta$ 1 (G-20): sc-19133. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic and nuclear staining of glandular cells.

## RESEARCH USE

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

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Try **AMPK $\beta$ 1 (Z14): sc-100357**, our highly recommended monoclonal alternative to AMPK $\beta$ 1 (G-20).