

p-AMPK β 1 (Ser 182): sc-109906

BACKGROUND

Five-prime-AMP-activated protein kinase, known as AMPK, is a heterotrimeric complex that comprises of a catalytic α subunit, and regulatory β and γ . AMPK protects cells from stresses that cause ATP depletion by switching off ATP-consuming biosynthetic pathways. AMPK is activated by high AMP and low ATP via a mechanism involving allosteric regulation, promotion of phosphorylation by an upstream protein kinase known as AMPK kinase (AMPKK), 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 native β 1 subunit has been found to be phosphorylated *in vivo* at three sites, Ser24/25, Ser108 and Ser182. Serine 108 is the major autophosphorylation site on the AMPK β subunit and mutation at this site leads to the inhibition of AMPK.

REFERENCES

- Hawley, S.A., et al. 1996. Characterization of the AMP-activated protein kinase kinase from rat liver and identification of threonine 172 as the major site at which it phosphorylates AMP-activated protein kinase. *J. Biol. Chem.* 271: 27879-27887.
- Stapleton, D., et al. 1996. Mammalian AMP-activated protein kinase subfamily. *J. Biol. Chem.* 271: 611-614.
- Hardie, D.G., et al. 1997. The AMP-activated protein kinase—fuel gauge of the mammalian cell? *Eur. J. Biochem.* 246: 259-273.
- Mitchell, K.I., et al. 1997. Posttranslational modifications of the 5'-AMP-activated protein kinase β 1 subunit. *J. Biol. Chem.* 272: 24475-24479.
- Stapleton, D., et al. 1997. AMP-activated protein kinase isoenzyme family: subunit structure and chromosomal location. *FEBS. Lett.* 409: 452-456.
- Thornton, C., et al. 1998. Identification of a novel AMP-activated protein kinase β subunit isoform that is highly expressed in skeletal muscle. *J. Biol. Chem.* 273: 12443-12450.
- Online Mendelian Inheritance in Man, OMIM™. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 602742. 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

p-AMPK β 1 (Ser 182) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Ser 182 of AMPK β 1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-109906 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-AMPK β 1 (Ser 182) is recommended for detection of Ser 182 phosphorylated AMPK β 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunofluorescence (starting dilution 1:25, dilution range 1:25-1:250), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:25, dilution range 1:25-1:250) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

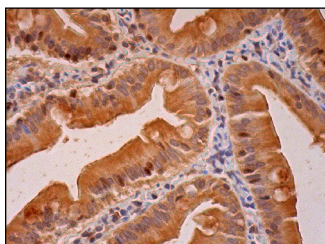
Suitable for use as control antibody for AMPK β 1 siRNA (h): sc-38925, AMPK β 1 siRNA (m): sc-38926, AMPK β 1 shRNA Plasmid (h): sc-38925-SH, AMPK β 1 shRNA Plasmid (m): sc-38926-SH, AMPK β 1 shRNA (h) Lentiviral Particles: sc-38925-V and AMPK β 1 shRNA (m) Lentiviral Particles: sc-38926-V.

Molecular Weight of p-AMPK β 1: 38 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2333, Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



p-AMPK β 1 (Ser 182): sc-109906. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic and nuclear staining of glandular cells.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.