SANTA CRUZ BIOTECHNOLOGY, INC.

p-AMPKβ1 (Ser 108): sc-33525

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

5'-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 β1 subunit has been found to be phosphorylated *in vivo* at three sites, Ser 24/25, Ser 108 and Ser 182. Serine 108 is the major autophosphorylation site on the AMPKβ subunit and mutation at this site leads to the inhibition of AMPK.

REFERENCES

1. Stapleton, D., et al. 1996. Mammalian AMP-activated protein kinase subfamily. J. Biol. Chem. 271: 611-614.
2. 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.
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. Mitchelhill, K.I., et al. 1997. Posttranslational modifications of the 5'-AMP-activated protein kinase β1 subunit. J. Biol. Chem. 272: 24475-24479.
5. Stapleton, D., et al. 1997. AMP-activated protein kinase isoenzyme family: subunit structure and chromosomal location. FEBS Lett. 409: 452-456.
6. 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.
7. 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-AMPKβ1 (Ser 108) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 108 phosphorylated AMPKβ1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-33525 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-AMPKβ1 (Ser 108) is recommended for detection of Ser 108 phosphorylated AMPKβ1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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); may cross-react with correspondingly phosphorylated AMPKβ2.

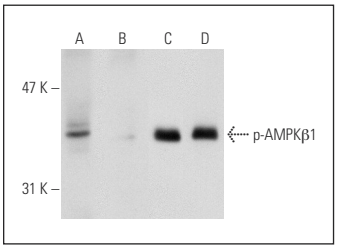
p-AMPKβ1 (Ser 108) is also recommended for detection of correspondingly phosphorylated AMPKβ1 in additional species, including canine, bovine, porcine and avian.

Suitable for use as control antibody for AMPKβ1 siRNA (h): sc-38925, AMPKβ1 siRNA (m): sc-38926, AMPKβ1 shRNA Plasmid (h): sc-38925-SH, AMPKβ1 shRNA Plasmid (m): sc-38926-SH, AMPKβ1 shRNA (h) Lentiviral Particles: sc-38925-V and AMPKβ1 shRNA (m) Lentiviral Particles: sc-38926-V.

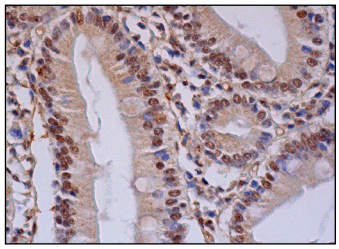
Molecular Weight of p-AMPKβ1: 38 kDa.

Positive Controls: C2C12 whole cell lysate: sc-364188.

DATA



Western blot analysis of AMPKβ1 phosphorylation in untreated (**A**,**C**) and lambda protein phosphatase (sc-200312A) treated (**B**,**D**) differentiated C2C12 whole cell lysates. Antibodies tested include p-AMPKβ1 (Ser 108): sc-33525 (**A**,**C**) and AMPKβ1 (Z14): sc-100357 (**B**,**D**).



p-AMPKβ1 (Ser 108): sc-33525. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing nuclear and cytoplasmic 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.