AMPKα1 (71.54): sc-130394

**BACKGROUND**

AMPK (for 5'-AMP-activated protein kinase) is a heterotrimeric complex comprising a catalytic α subunit and regulatory β and γ 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 AMPKα1 and AMPKα2 genes encode 548 amino acid and 552 amino acid proteins, respectively. Human AMPKβ1 encodes a 271 amino acid protein and human AMPKβ2 encodes a 272 amino acid protein. The human AMPKγ1 gene encodes a 331 amino acid protein. Human AMPKγ2 and AMPKγ3, 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**


**CHROMOSOMAL LOCATION**

Genetic locus: PRKAA1 (human) mapping to 5p13.1.

**SOURCE**

AMPKα1 (71.54) is a mouse monoclonal antibody raised against recombinant AMPKα1 of human origin.

**PRODUCT**

Each vial contains 100 µg IgGκ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

**APPLICATIONS**

AMPKα1 (71.54) is recommended for detection of AMPKα1 of 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000). Suitable for use as control antibody for AMPKα1 siRNA (h); sc-29673, AMPKα1 shRNA Plasmid (h): sc-29673-SH and AMPKα1 shRNA (h) Lentiviral Particles: sc-29673-V.

Molecular Weight of AMPKα1: 63 kDa.

Positive Controls: Hela whole cell lysate: sc-2200, Hep G2 cell lysate: sc-2227 or MCF7 whole cell lysate: sc-2206.

**RECOMMENDED SUPPORT REAGENTS**

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-61241 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

**DATA**

Western blot analysis of AMPKα1 phosphorylation in untreated (A,C) and lambda protein phosphatase treated (B,D) C2C12 whole cell lysates. Antibodies tested include p-AMPKα1/2 (Thr 18/28), sc-101630 (A,B) and AMPKα1 (71.54): sc-130394 (C,D).

**SELECT PRODUCT CITATIONS**


**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.