

AMPK γ 3 (D-22): sc-130687

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 AMPK α 1 and AMPK α 2 genes encode 548 amino acid and 552 amino acid proteins, respectively. Human AMPK β 1 encodes a 271 amino acid protein and human AMPK β 2 encodes a 272 amino acid protein. The human AMPK γ 1 gene encodes a 331 amino acid protein. Human AMPK γ 2 and AMPK γ 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 β subunit isoform that is highly expressed in skeletal muscle. *J. Biol. Chem.* 273: 12443-12450.
5. Online Mendelian Inheritance in Man, OMIM™. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 602739. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Cheung, P.C., et al. 2000. Characterization of AMP-activated protein kinase γ subunit isoforms and their role in AMP binding. *Biochem. J.* 346: 659-669.

CHROMOSOMAL LOCATION

Genetic locus: PRKAG3 (human) mapping to 2q35; Prkag3 (mouse) mapping to 1 C3.

SOURCE

AMPK γ 3 (D-22) is a purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of AMPK γ 3 of human origin.

PRODUCT

Each vial contains 100 μ g IgG in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

AMPK γ 3 (D-22) is recommended for detection of AMPK γ 3 of mouse and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

Suitable for use as control antibody for AMPK γ 3 siRNA (h): sc-38933, AMPK γ 3 siRNA (m): sc-72114, AMPK γ 3 shRNA Plasmid (h): sc-38933-SH, AMPK γ 3 shRNA Plasmid (m): sc-72114-SH, AMPK γ 3 shRNA (h) Lentiviral Particles: sc-38933-V and AMPK γ 3 shRNA (m) Lentiviral Particles: sc-72114-V.

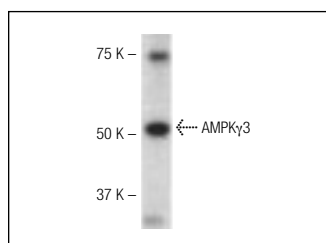
Molecular Weight of AMPK γ 3: 55 kDa.

Positive Controls: mouse brain extract: sc-2253.

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 A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

DATA



AMPK γ 3 (D-22): sc-130687. Western blot analysis of AMPK γ 3 expression in mouse brain tissue extract.

RESEARCH USE

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



Try **AMPK γ 1/2/3 (H-9): sc-390579**, our highly recommended monoclonal alternative to AMPK γ 3 (D-22).