

AMPK α 2 (C-20): sc-19131

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.

CHROMOSOMAL LOCATION

Genetic locus: PRKAA2 (human) mapping to 1p32.2; Prkaa2 (mouse) mapping to 4 C6.

SOURCE

AMPK α 2 (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of AMPK α 2 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-19131 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

AMPK α 2 (C-20) is recommended for detection of AMPK α 2 of mouse, rat 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

AMPK α 2 (C-20) is also recommended for detection of AMPK α 2 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for AMPK α 2 siRNA (h): sc-38923, AMPK α 2 siRNA (m): sc-38924, AMPK α 2 shRNA Plasmid (h): sc-38923-SH, AMPK α 2 shRNA Plasmid (m): sc-38924-SH, AMPK α 2 shRNA (h) Lentiviral Particles: sc-38923-V and AMPK α 2 shRNA (m) Lentiviral Particles: sc-38924-V.

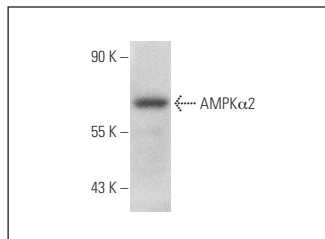
Molecular Weight of AMPK α 2: 63 kDa.

Positive Controls: mouse liver extract: sc-2256 or rat skeletal muscle extract: sc-364810.

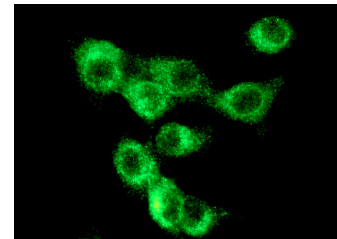
STORAGE

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

DATA



AMPK α 2 (C-20): sc-19131. Western blot analysis of AMPK α 2 expression in rat skeletal muscle extract.



AMPK α 2 (C-20): sc-19131. Immunofluorescence staining of methanol-fixed L8 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Xie, M., et al. 2006. A pivotal role for endogenous TGF- β -activated kinase-1 in the LKB1/AMP-activated protein kinase energy-sensor pathway. *Proc. Natl. Acad. Sci. USA* 103: 17378-17383.
- Scharf, M.T., et al. 2008. AMP-activated protein kinase phosphorylation in brain is dependent on method of killing and tissue preparation. *J. Neurochem.* 105: 833-841.
- Nikonova, E.V., et al. 2010. Changes in components of energy regulation in mouse cortex with increases in wakefulness. *Sleep* 33: 889-900.
- Pulinilkunnill, T., et al. 2011. Adrenergic regulation of AMP-activated protein kinase in BAT *in vivo*. *J. Biol. Chem.* 286: 8798-8809.
- Ost, M., et al. 2014. Activation of AMPK α 2 is not crucial for mitochondrial uncoupling-induced metabolic effects but required to maintain skeletal muscle integrity. *PLoS ONE* 9: e94689.
- Madiraju, A.K., et al. 2014. Metformin suppresses gluconeogenesis by inhibiting mitochondrial glycerophosphate dehydrogenase. *Nature* 510: 542-546.

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.



Try **AMPK α 1/2 (D-6): sc-74461**, our highly recommended monoclonal alternative to AMPK α 2 (C-20). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **AMPK α 1/2 (D-6): sc-74461**.