SANTA CRUZ BIOTECHNOLOGY, INC.

AMPKα1/2 (H-300): sc-25792

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.

CHROMOSOMAL LOCATION

Genetic locus: PRKAA1 (human) mapping to 5p13.1, PRKAA2 (human) mapping to 1p32.2; Prkaa1 (mouse) mapping to 15 A1, Prkaa2 (mouse) mapping to 4 C6.

SOURCE

AMPKα1/2 (H-300) is a rabbit polyclonal antibody raised against amino acids 251-550 mapping at the C-terminus of AMPKα1 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.

APPLICATIONS

AMPKα1/2 (H-300) is recommended for detection of AMPKα1 and AMPKα2 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). AMPKα1/2 (H-300) is also recommended for detection of AMPKα1 and AMPKα2 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for AMPKα1/2 siRNA (h): sc-45312, AMPKα1/2 siRNA (m): sc-45313, AMPKα1/2 shRNA Plasmid (h): sc-45312-SH, AMPKα1/2 shRNA Plasmid (m): sc-45313-SH, AMPKα1/2 shRNA (h) Lentiviral Particles: sc-45312-V and AMPKα1/2 shRNA (m) Lentiviral Particles: sc-45313-V.

Molecular Weight of AMPKα1/2: 63 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203 or C2C12 whole cell lysate: sc-364188.

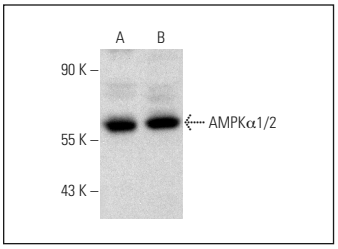
RESEARCH USE

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

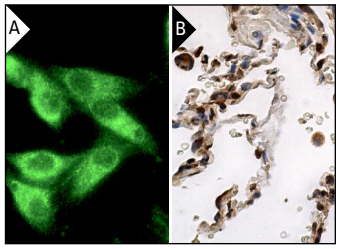
STORAGE

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

DATA



AMPKα1/2 (H-300): sc-25792. Western blot analysis of AMPKα1/2 expression in K-562 (**A**) and C2C12 (**B**) whole cell lysates.



AMPKα1/2 (H-300): sc-25792. Immunofluorescence staining of methanol-fixed L8 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lung tissue showing cytoplasmic staining of macrophages and pneumocytes (**B**).

SELECT PRODUCT CITATIONS

1. Tulipano, G., et al. 2008. Effects of olanzapine on glucose transport, proliferation and survival in C2C12 myoblasts. Mol. Cell. Endocrinol. 292: 42-49.
2. Guest, C.B., et al. 2008. Macropinocytosis is decreased in diabetic mouse macrophages and is regulated by AMPK. BMC Immunol. 9: 42.
3. Zhou, Y., et al. 2014. The formation of brown adipose tissue induced by transgenic over-expression of PPARγ2. Biochem. Biophys. Res. Commun. 446: 959-964.
4. Ro, S.H., et al. 2014. Sestrin2 inhibits uncoupling protein 1 expression through suppressing reactive oxygen species. Proc. Natl. Acad. Sci. USA 111: 7849-7854.
5. Haimovich, B., et al. 2014. Cellular metabolic regulators: novel indicators of low-grade inflammation in humans. Ann. Surg. 259: 999-1006.
6. Baldelli, S., et al. 2014. PGC-1α buffers ROS-mediated removal of mitochondria during myogenesis. Cell Death Dis. 5: e1515.
7. Wong, H.S., et al. 2015. A cistanches herba fraction/β-sitosterol causes a redox-sensitive induction of mitochondrial uncoupling and activation of adenosine monophosphate-dependent protein kinase/peroxisome proliferator-activated receptor γ coactivator-1 in C2C12 myotubes: a possible mechanism underlying the weight reduction effect. Evid. Based Complement. Alternat. Med. 2015: 142059.
8. Li, X.J., et al. 2015. *Gynura procumbens* reverses acute and chronic ethanol-induced liver steatosis through MAPK/SREBP-1c-dependent and -independent pathways. J. Agric. Food Chem. 63: 8460-8471.