SANTA CRUZ BIOTECHNOLOGY, INC.

AMPD1 (D-7): sc-393117

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Adenosine monophosphate (AMP) deaminase is a cytosolic enzyme responsible for the hydrolytic deamination of AMP to inosine monophosphate (IMP) and NH3. AMP deaminase functions as a homotetramer and participates in the purine nucleotide cycle, playing an important role in energy metabolism. Three differentially expressed isozymes of AMP deaminase exist in mammals, namely AMPD1, AMPD2 and AMPD3, and they differ among their N-terminal domains while sharing a conserved C-terminal catalytic domain. AMPD1 is expressed in skeletal muscle; AMPD2 is found in undifferentiated myoblasts, smooth muscle, embryonic muscle and non-muscle tissue; and AMPD3 is expressed in erythrocytes. Defects in the AMPD1 gene result in adenosine monophosphate deaminase deficiency muscle type (AMPDDM). AMPDDM is a metabolic disorder resulting in exercise-related myopathy and is characterized by exercise-induced muscle aches, cramps, and early fatigue.

REFERENCES

1. Mahnke-Zizelman, D.K., et al. 1996. Cloning, sequence and characterization of the human AMPD2 gene: evidence for transcriptional regulation by two closely spaced promoters. Biochim. Biophys. Acta 1308: 122-132.
2. Mahnke-Zizelman, D.K., et al. 1997. Regulation of rat AMP deaminase 3 (isoform C) by development and skeletal muscle fibre type. Biochem. J. 326: 521-529.
3. Mahnke-Zizelman, D.K. and Sabina, R.L. 2001. Localization of N-terminal sequences in human AMP deaminase isoforms that influence contractile protein binding. Biochem. Biophys. Res. Commun. 285: 489-495.

CHROMOSOMAL LOCATION

Genetic locus: AMPD1 (human) mapping to 1p13.2; Ampd1 (mouse) mapping to 3 F2.2.

SOURCE

AMPD1 (D-7) is a mouse monoclonal antibody raised against amino acids 104-181 mapping near the N-terminus of AMPD1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

AMPD1 (D-7) is available conjugated to agarose (sc-393117 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-393117 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393117 PE), fluorescein (sc-393117 FITC), Alexa Fluor® 488 (sc-393117 AF488), Alexa Fluor® 546 (sc-393117 AF546), Alexa Fluor® 594 (sc-393117 AF594) or Alexa Fluor® 647 (sc-393117 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393117 AF680) or Alexa Fluor® 790 (sc-393117 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

AMPD1 (D-7) is recommended for detection of AMPD1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for AMPD1 siRNA (h): sc-78635, AMPD1 siRNA (m): sc-141052, AMPD1 siRNA (r): sc-270308, AMPD1 shRNA Plasmid (h): sc-78635-SH, AMPD1 shRNA Plasmid (m): sc-141052-SH, AMPD1 shRNA Plasmid (r): sc-270308-SH, AMPD1 shRNA (h) Lentiviral Particles: sc-78635-V, AMPD1 shRNA (m) Lentiviral Particles: sc-141052-V and AMPD1 shRNA (r) Lentiviral Particles: sc-270308-V.

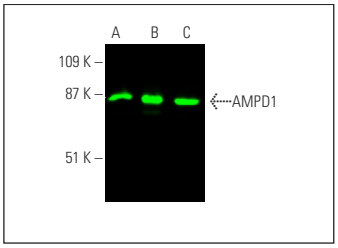
Molecular Weight of AMPD1: 86 kDa.

Positive Controls: rat skeletal muscle extract: sc-364810, mouse skeletal muscle extract: sc-364250 or human skeletal muscle extract: sc-363776.

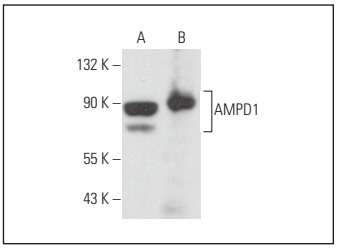
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGλ BP-HRP: sc-516132 or m-IgGλ BP-HRP (Cruz Marker): sc-516132-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGλ BP-FITC: sc-516185 or m-IgGλ BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



AMPD1 (D-7): sc-393117. Near-infrared western blot analysis of AMPD1 expression in human skeletal muscle (**A**), mouse skeletal muscle (**B**) and rat skeletal muscle (**C**) tissue extracts. Detection reagent used: m-IgGλ BP-CFL 680: sc-516194.



AMPD1 (D-7): sc-393117. Western blot analysis of AMPD1 expression in NCI-H929 whole cell lysate (**A**) and rat skeletal muscle tissue extract (**B**). Detection reagent used: m-IgGλ BP-HRP (Cruz Marker): sc-516132-CM.

SELECT PRODUCT CITATIONS

1. Miller, S.G., et al. 2021. AMP deamination is sufficient to replicate an atrophy-like metabolic phenotype in skeletal muscle. Metabolism 123: 154864.

RESEARCH USE

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