

PCCA (D-5): sc-374341

BACKGROUND

PCCA (propionyl coenzyme A carboxylase, α polypeptide) is a 703 amino acid protein that localizes to the mitochondrion matrix. PCCA is a mitochondrial, biotin-dependent enzyme involved in the catabolism of branched chain amino acids, odd chain fatty acids, and other metabolites. PCCA is responsible for the formation of carboxybiotin upon hydrolysis of ATP and contains a C-terminal biotin-binding domain and a biotin carboxylase domain. Inherited mutations in the gene that encodes PCCA result in a deficiency of the protein, which leads to propionic acidemia (PA), an autosomal recessive inborn error in the catabolism of methionine, isoleucine, threonine, and valine, odd-numbered chain length fatty acids and cholesterol. Two isoforms exist due to alternative splicing events.

REFERENCES

1. Kelson, T.L., et al. 1996. Chaperonin-mediated assembly of wild-type and mutant subunits of human propionyl-CoA carboxylase expressed in *Escherichia coli*. Hum. Mol. Genet. 5: 331-337.
2. Richard, E., et al. 1997. Three novel splice mutations in the PCCA gene causing identical exon skipping in propionic acidemia patients. Hum. Genet. 101: 93-96.

CHROMOSOMAL LOCATION

Genetic locus: PCCA (human) mapping to 13q32.3; Pcca (mouse) mapping to 14 E5.

SOURCE

PCCA (D-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 195-231 within an internal region of PCCA of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PCCA (D-5) is available conjugated to agarose (sc-374341 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374341 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374341 PE), fluorescein (sc-374341 FITC), Alexa Fluor® 488 (sc-374341 AF488), Alexa Fluor® 546 (sc-374341 AF546), Alexa Fluor® 594 (sc-374341 AF594) or Alexa Fluor® 647 (sc-374341 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374341 AF680) or Alexa Fluor® 790 (sc-374341 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-374341 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

PCCA (D-5) is recommended for detection of PCCA of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 PCCA siRNA (h): sc-76077, PCCA siRNA (m): sc-76078, PCCA shRNA Plasmid (h): sc-76077-SH, PCCA shRNA Plasmid (m): sc-76078-SH, PCCA shRNA (h) Lentiviral Particles: sc-76077-V and PCCA shRNA (m) Lentiviral Particles: sc-76078-V.

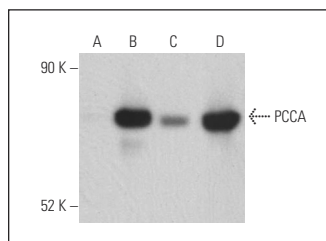
Molecular Weight of PCCA: 70 kDa.

Positive Controls: PCCA (h): 293T Lysate: sc-110766, Hep G2 cell lysate: sc-2227 or human kidney extract: sc-363764.

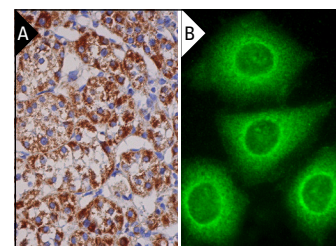
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-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-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



PCCA (D-5): sc-374341. Western blot analysis of PCCA expression in non-transfected 293T: sc-117752 (A), human PCCA transfected 293T: sc-110766 (B) and Hep G2 (C) whole cell lysates and human kidney tissue extract (D). Detection reagent used: m-IgG₁ BP-HRP: sc-525408.



PCCA (D-5): sc-374341. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of glandular cells (A). Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (B).

SELECT PRODUCT CITATIONS

1. Spangsborg Petersen, U.S., et al. 2024. Regulating PCCA gene expression by modulation of pseudoexon splicing patterns to rescue enzyme activity in propionic acidemia. Mol. Ther. Nucleic Acids 35: 102101.

RESEARCH USE

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