

CPS2 (F-6): sc-376072

BACKGROUND

The multicomplex protein, carbamoyl-phosphate synthetase-aspartate carbamoyl transferase-dihydroorotase (CAD), consists of three distinct proteins, carbamoyl phosphate synthetase 2 (CPS2), aspartate transcarbamylase, and dihydroorotase, which catalyze the second and third steps of pyrimidine biosynthesis. CAD is allosterically regulated by the phosphorylation of CPS2 by cyclic AMP-dependent protein kinase, and this activation enables CPS2 to catalyze the rate-limiting step of pyrimidine synthesis. CAD is expressed in brain and skeletal muscle. A related protein, carbamoyl phosphate synthetase 1 (CPS1) is expressed in liver. CPS1 catalyzes the rate-limiting step in the urea cycle, and deficiency of CPS1 is an autosomal recessive disorder that causes hyperammonemia.

CHROMOSOMAL LOCATION

Genetic locus: CAD (human) mapping to 2p23.3; Cad (mouse) mapping to 5 B1.

SOURCE

CPS2 (F-6) is a mouse monoclonal antibody raised against amino acids 1311-1490 mapping within an internal region of CPS2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CPS2 (F-6) is available conjugated to agarose (sc-376072 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376072 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376072 PE), fluorescein (sc-376072 FITC), Alexa Fluor® 488 (sc-376072 AF488), Alexa Fluor® 546 (sc-376072 AF546), Alexa Fluor® 594 (sc-376072 AF594) or Alexa Fluor® 647 (sc-376072 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376072 AF680) or Alexa Fluor® 790 (sc-376072 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

CPS2 (F-6) is recommended for detection of CPS2 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), 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 CPS2 siRNA (h): sc-41457, CPS2 siRNA (m): sc-41458, CPS2 shRNA Plasmid (h): sc-41457-SH, CPS2 shRNA Plasmid (m): sc-41458-SH, CPS2 shRNA (h) Lentiviral Particles: sc-41457-V and CPS2 shRNA (m) Lentiviral Particles: sc-41458-V.

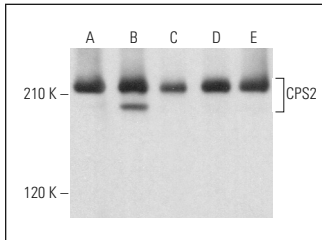
Molecular Weight of CPS2: 243 kDa.

Positive Controls: Y79 cell lysate: sc-2240, C2C12 whole cell lysate: sc-364188 or SJRH30 cell lysate: sc-2287.

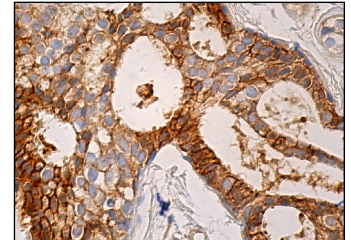
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



CPS2 (F-6): sc-376072. Western blot analysis of CPS2 expression in Y79 (A), K-562 (B), L6 (C), C2C12 (D) and SJRH30 (E) whole cell lysates.



CPS2 (F-6): sc-376072. Immunoperoxidase staining of formalin fixed, paraffin-embedded human breast tissue showing cytoplasmic and membrane staining of glandular cells.

SELECT PRODUCT CITATIONS

- Wang, Y., et al. 2019. Coordinative metabolism of glutamine carbon and nitrogen in proliferating cancer cells under hypoxia. *Nat. Commun.* 10: 201.
- Zurlo, G., et al. 2019. Prolyl hydroxylase substrate adenylosuccinate lyase is an oncogenic driver in triple negative breast cancer. *Nat. Commun.* 10: 5177.
- Ridder, D.A., et al. 2021. Key enzymes in pyrimidine synthesis, CAD and CPS1, predict prognosis in hepatocellular carcinoma. *Cancers* 13: 744.
- Bai, C., et al. 2021. Urea as a by-product of ammonia metabolism can be a potential serum biomarker of hepatocellular carcinoma. *Front. Cell Dev. Biol.* 9: 650748.
- Kim, D.H., et al. 2022. dTMP imbalance through thymidylate 5'-phosphohydrolyase activity induces apoptosis in triple-negative breast cancers. *Sci. Rep.* 12: 20027.

STORAGE

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

RESEARCH USE

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