

# CPS1 (H-140): sc-30060

## 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.

## REFERENCES

- Otsuki, T., et al. 1981. Phosphorylation and dephosphorylation of carbamoyl-phosphate synthetase II complex of rat ascites hepatoma cells. *J. Biochem.* 89: 1367-1374.
- Carrey, E.A., et al. 1985. Phosphorylation and activation of hamster carbamyl-phosphate synthetase II by cAMP-dependent protein kinase. A novel mechanism for regulation of pyrimidine nucleotide biosynthesis. *EMBO J.* 4: 3735-3742.

## CHROMOSOMAL LOCATION

Genetic locus: CPS1 (human) mapping to 2q34; Cps1 (mouse) mapping to 1 C3.

## SOURCE

CPS1 (H-140) is a rabbit polyclonal antibody raised against amino acids 1361-1500 mapping at the C-terminus of CPS1 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

CPS1 (H-140) is recommended for detection of CPS1 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). CPS1 (H-140) is also recommended for detection of CPS1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for CPS1 siRNA (h): sc-35099, CPS1 siRNA (m): sc-35100, CPS1 shRNA Plasmid (h): sc-35099-SH, CPS1 shRNA Plasmid (m): sc-35100-SH, CPS1 shRNA (h) Lentiviral Particles: sc-35099-V and CPS1 shRNA (m) Lentiviral Particles: sc-35100-V.

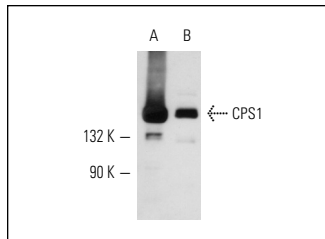
Molecular Weight of CPS1: 165 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, mouse liver extract: sc-2256 or rat brain extract: sc-2392.

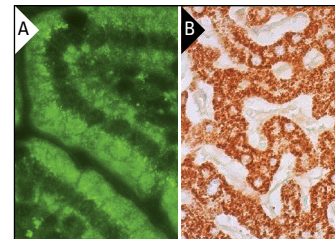
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



CPS1 (H-140): sc-30060. Western blot analysis of CPS1 expression in mouse liver tissue extract (A) and HeLa whole cell lysate (B).



CPS1 (H-140): sc-30060. Immunofluorescence staining of normal mouse intestine frozen section showing cytoplasmic staining (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing cytoplasmic staining of hepatocytes (B).

## SELECT PRODUCT CITATIONS

- Lee, Y.Y., et al. 2014. Overexpression of CPS1 is an independent negative prognosticator in rectal cancers receiving concurrent chemoradiotherapy. *Tumour Biol.* 35: 11097-11105.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.


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Try **CPS1 (B-1): sc-376190**, our highly recommended monoclonal alternative to CPS1 (H-140).