SANTA CRUZ BIOTECHNOLOGY, INC.

p-CPS2 (Thr 456): sc-12964

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The multicomplex protein, carbamoyl-phosphate synthetase-aspartate carbamoyl transferase-dihydro-orotase (CAD), consists of three distinct proteins, carbamoyl phosphate synthetase 2 (CPS2), aspartate transcarbamylase and dihydro-orotase, 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

p-CPS2 (Thr 456) is available as either goat (sc-12964) or rabbit (sc-12964-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing phosphorylated Thr 456 of CPS2 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.

Blocking peptide available for competition studies, sc-12964 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

p-CPS2 (Thr 456) is recommended for detection of Thr 456 phosphorylated CPS2 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with CPS1.

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.

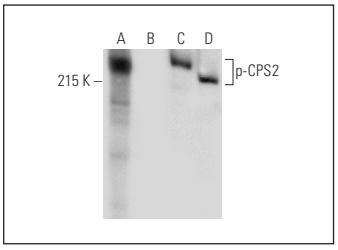
Molecular Weight of p-CPS2: 243 kDa.

Positive Controls: HeLa nuclear extract: sc-2120 or A-431 nuclear extract: sc-2122.

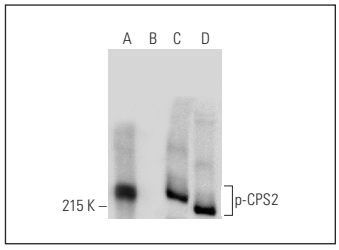
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: for goat primary antibody (sc-12964): use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), for rabbit primary antibody (sc-12964-R): 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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: for goat primary antibody (sc-12964): use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941, for rabbit primary antibody (sc-12964-R): 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



Western blot analysis of CPS2 phosphorylation in untreated (**A**,**C**) and lambda protein phosphatase (sc-200312A) treated (**B**,**D**) HeLa nuclear extracts. Antibodies tested include p-CPS2 (Thr 456)-R: sc-12964-R (**A**,**B**) and CPS2 (F-6): sc-376072 (**C**,**D**).



Western blot analysis of CPS2 phosphorylation in untreated (**A**,**C**) and lambda protein phosphatase (sc-200312A) treated (**B**,**D**) A-431 nuclear extracts. Antibodies tested include p-CPS2 (Thr 456)-R: sc-12964-R (**A**,**B**) and CPS2 (F-6): sc-376072 (**C**,**D**).

SELECT PRODUCT CITATIONS

1. Sigoillot, F.D., et al. 2005. Nuclear localization and mitogen-activated protein kinase phosphorylation of the multifunctional protein CAD. J. Biol. Chem. 280: 25611-25620.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.