

# CARKL (H-300): sc-134635

## BACKGROUND

CARKL, also known as SHPK (sedoheptulokinase), is a 478 amino acid protein that localizes to the cytoplasm and belongs to the FGGY family of protein kinases. Expressed at high levels in kidney, pancreas and liver and at lower levels in heart, placenta, brain and lung, CARKL functions at an optimal pH of 8.5 and catalyzes the ATP-dependent phosphorylation of sedoheptulose to yield sedoheptulose 7-phosphate, an intermediate in the pentose phosphate pathway. Once phosphorylated, sedoheptulose is unable to exit the cell via the cell membrane, resulting in the containment of sedoheptulose 7-phosphate within the cell. Defects in the gene encoding CARKL are associated with cystinosis, an autosomal recessive genetic disorder of the renal tubules that is characterized by excessive urination and low blood levels of phosphates and potassium.

## REFERENCES

1. Williams, J.F., et al. 1985. The significance of sedoheptulose 1,7-bisphosphate in the metabolism and regulation of the pentose pathway in liver. *Biochem. Int.* 11: 599-610.
2. Anikster, Y., et al. 1999. CTNS mutations in patients with cystinosis. *Hum. Mutat.* 14: 454-458.
3. Touchman, J.W., et al. 2000. The genomic region encompassing the nephropathic cystinosis gene (CTNS): complete sequencing of a 200-kb segment and discovery of a novel gene within the common cystinosis-causing deletion. *Genome Res.* 10: 165-173.
4. Phornphutkul, C., et al. 2001. The promoter of a lysosomal membrane transporter gene, CTNS, binds Sp-1, shares sequences with the promoter of an adjacent gene, CARKL, and causes cystinosis if mutated in a critical region. *Am. J. Hum. Genet.* 69: 712-721.
5. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605060. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Bendavid, C., et al. 2004. FISH diagnosis of the common 57-kb deletion in CTNS causing cystinosis. *Hum. Genet.* 115: 510-514.

## CHROMOSOMAL LOCATION

Genetic locus: SHPK (human) mapping to 17p13.2; Shpk (mouse) mapping to 11 B4.

## SOURCE

CARKL (H-300) is a rabbit polyclonal antibody raised against amino acids 179-478 mapping at the C-terminus of CARKL 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.

## STORAGE

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

## APPLICATIONS

CARKL (H-300) is recommended for detection of CARKL 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).

CARKL (H-300) is also recommended for detection of CARKL in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for CARKL siRNA (h): sc-93783, CARKL siRNA (m): sc-142012, CARKL shRNA Plasmid (h): sc-93783-SH, CARKL shRNA Plasmid (m): sc-142012-SH, CARKL shRNA (h) Lentiviral Particles: sc-93783-V and CARKL shRNA (m) Lentiviral Particles: sc-142012-V.

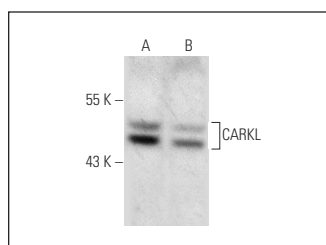
Molecular Weight of CARKL: 52 kDa.

Positive Controls: mouse colon extract: sc-364238, Caki-1 cell lysate: sc-2224 or HeLa whole cell lysate: sc-2200.

## 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<sup>™</sup> compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> 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<sup>™</sup> Mounting Medium: sc-24941.

## DATA



CARKL (H-300): sc-134635. Western blot analysis of CARKL expression in Caki-1 (A) and HeLa (B) whole cell lysates.

## 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.