

# CARL (H-5): sc-376368

## BACKGROUND

CARL, 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, CARL 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 CARL 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, CARL, and causes cystinosis if mutated in a critical region. *Am. J. Hum. Genet.* 69: 712-721.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605060. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: SHPK (human) mapping to 17p13.2.

## SOURCE

CARL (H-5) is a mouse monoclonal antibody raised against amino acids 179-478 mapping at the C-terminus of CARL of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CARL (H-5) is available conjugated to agarose (sc-376368 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376368 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376368 PE), fluorescein (sc-376368 FITC), Alexa Fluor® 488 (sc-376368 AF488), Alexa Fluor® 546 (sc-376368 AF546), Alexa Fluor® 594 (sc-376368 AF594) or Alexa Fluor® 647 (sc-376368 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376368 AF680) or Alexa Fluor® 790 (sc-376368 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

CARL (H-5) is recommended for detection of CARL of 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 CARL siRNA (h): sc-93783, CARL shRNA Plasmid (h): sc-93783-SH and CARL shRNA (h) Lentiviral Particles: sc-93783-V.

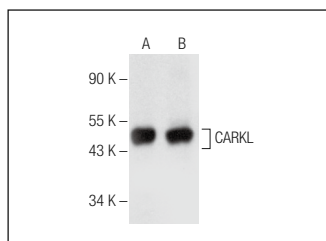
Molecular Weight of CARL: 52 kDa.

Positive Controls: HEK293 whole cell lysates or Jurkat whole cell lysate: sc-2204.

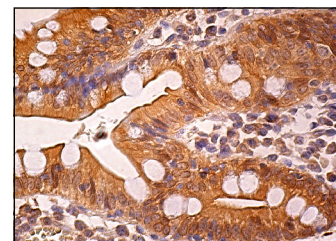
## RECOMMENDED SUPPORT REAGENTS

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



CARL (H-5): sc-376368. Western blot analysis of CARL expression in HEK293 (A) and Jurkat (B) whole cell lysates.



CARL (H-5): sc-376368. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells.

## 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.

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