SANTA CRUZ BIOTECHNOLOGY, INC.

DcpS (A-12): sc-393226

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Eukaryotic cells primarily utilize exoribonucleases and decapping enzymes to degrade their mRNA. DcpS is a scavenger pyrophosphatase that hydrolyzes the residual cap structure following 3' to 5' decay of an mRNA. Following mRNA degradation DcpS releases N-7 methyl guanosine monophosphate and 5'-diphosphate terminated cap or mRNA products. The central histidine within the DcpS HIT motif is critical for decapping activity and defines the HIT motif as a new mRNA decapping domain, making DcpS the first member of the HIT family of proteins with a defined biological function. HIT proteins are homodimeric and contain two conserved 100-amino-acid HIT fold domains with independent active sites that are each sufficient to bind and hydrolyze cognate substrates.

REFERENCES

1. Fireman, P. 1992. Diagnosis of sinusitis in children: emphasis on the history and physical examination. J. Allergy Clin. Immunol. 90: 433-436.
2. Wang, Z. and Kiledjian, M. 2001. Functional link between the mammalian exosome and mRNA decapping. Cell 107: 751-762.
3. Liu, H., et al. 2002. The scavenger mRNA decapping enzyme DcpS is a member of the HIT family of pyrophosphatases. EMBO J. 21: 4699-4708.
4. Wang, Z., et al. 2002. The hDcp2 protein is a mammalian mRNA decapping enzyme. Proc. Natl. Acad. Sci. USA 99: 12663-12668.
5. Gu, M., et al. 2004. Insights into the structure, mechanism, and regulation of scavenger mRNA decapping activity. Mol. Cell 14: 67-80.

CHROMOSOMAL LOCATION

Genetic locus: DCPS (human) mapping to 11q24.2; Dcps (mouse) mapping to 9 A4.

SOURCE

DcpS (A-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 97-124 within an internal region of DcpS of human origin.

PRODUCT

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

DcpS (A-12) is available conjugated to agarose (sc-393226 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393226 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393226 PE), fluorescein (sc-393226 FITC), Alexa Fluor® 488 (sc-393226 AF488), Alexa Fluor® 546 (sc-393226 AF546), Alexa Fluor® 594 (sc-393226 AF594) or Alexa Fluor® 647 (sc-393226 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393226 AF680) or Alexa Fluor® 790 (sc-393226 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393226 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

DcpS (A-12) is recommended for detection of DcpS 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).

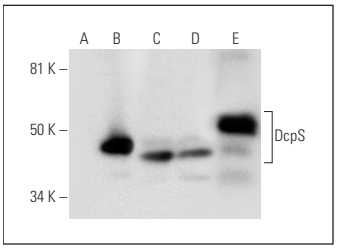
DcpS (A-12) is also recommended for detection of DcpS in additional species, including equine and porcine.

Suitable for use as control antibody for DcpS siRNA (h): sc-44389, DcpS siRNA (m): sc-44390, DcpS shRNA Plasmid (h): sc-44389-SH, DcpS shRNA Plasmid (m): sc-44390-SH, DcpS shRNA (h) Lentiviral Particles: sc-44389-V and DcpS shRNA (m) Lentiviral Particles: sc-44390-V.

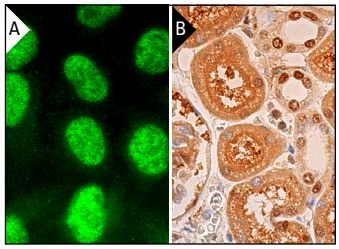
Molecular Weight of DcpS: 40 kDa.

Positive Controls: DcpS (m): 293T Lysate: sc-119688, HeLa whole cell lysate: sc-2200 or human liver extract: sc-363766.

DATA



DcpS (A-12): sc-393226. Western blot analysis of DcpS expression in non-transfected 293T: sc-117752 (**A**), mouse DcpS transfected 293T: sc-119688 (**B**) and HeLa (**C**) whole cell lysates and mouse liver (**D**) and human liver (**E**) tissue extracts.



DcpS (A-12): sc-393226. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli and nuclear and cytoplasmic staining of cells in tubules (**B**).

SELECT PRODUCT CITATIONS

1. Yamauchi, T., et al. 2018. Genome-wide CRISPR-Cas9 screen identifies leukemia-specific dependence on a pre-mRNA metabolic pathway regulated by DcpS. Cancer Cell 33: 386-400.e5.
2. Swartzel, J.C., et al. 2022. Targeted degradation of mRNA decapping enzyme DcpS by a VHL-recruiting PROTAC. ACS Chem. Biol. 17: 1789-1798.

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.