

Dcp1a (C-17): sc-22575

BACKGROUND

Cleavage of the 5'-cap structure is involved in the major 5'-to-3' and non-sense-mediated mRNA decay pathways. The protein complex consisting of Dcp1 and Dcp2 has been identified as the species responsible for the decapping reaction in *Saccharomyces cerevisiae*. In nonsense-mediated decay, the human decapping complex, made up of *S. cerevisiae* homologs Dcp1a and hDcp2, may be recruited to mRNAs containing premature termination codons by nonsense-mediated decay factor (Upf) proteins. hDcp2 specifically hydrolyzes methylated capped RNA to release m⁷GDP, thereby aiding in mRNA degradation. Both Dcp1a and hDcp2 colocalize in the cytoplasm. In addition, Dcp1a interacts with Smad4 forming a complex with TGF β and BMP-4. Dcp1a and Smad4 interact directly through a EVH1/WH1 domain on Dcp1a and a proline-rich activation domain on Smad4. Smad4 is essential to nuclear translocation of Dcp1a as deletion of the Smad4-interacting domain (located in the N-terminal 100 amino acids) of Dcp1a eliminates TGF β -induced nuclear translocation of Dcp1a.

REFERENCES

1. LaGrande, T.E., et al. 1998. Isolation and characterization of Dcp1p, the yeast mRNA decapping enzyme. *EMBO J.* 17: 1487-1496.
2. Itoh, S., et al. 2000. Signaling of transforming growth factor β family members through Smad proteins. *Eur. J. Biochem.* 267: 6954-6967.
3. Tucker, M., et al. 2000. Mechanisms and control of mRNA decapping in *Saccharomyces cerevisiae*. *Annu. Rev. Biochem.* 69: 571-595.
4. Moustakas, A., et al. 2001. Smad regulation in TGF β signal transduction. *J. Cell Sci.* 114: 4359-4369.
5. Callebaut, I. 2002. An EVH1/WH1 domain as a key actor in TGF β signalling. *FEBS Lett.* 519: 178-180.
6. Chen, W., et al. 2002. Review of current progress in the structure and function of Smad proteins. *Chin. Med. J.* 115: 446-450.

CHROMOSOMAL LOCATION

Genetic locus: DCP1A (human) mapping to 3p21.1; Dcp1a (mouse) mapping to 14 B.

SOURCE

Dcp1a (C-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Dcp1a of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22575 P, (100 μ g 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.

APPLICATIONS

Dcp1a (C-17) is recommended for detection of Dcp1a of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

Dcp1a (C-17) is also recommended for detection of Dcp1a in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Dcp1a siRNA (h): sc-45779, Dcp1a siRNA (m): sc-45780, Dcp1a shRNA Plasmid (h): sc-45779-SH, Dcp1a shRNA Plasmid (m): sc-45780-SH, Dcp1a shRNA (h) Lentiviral Particles: sc-45779-V and Dcp1a shRNA (m) Lentiviral Particles: sc-45780-V.

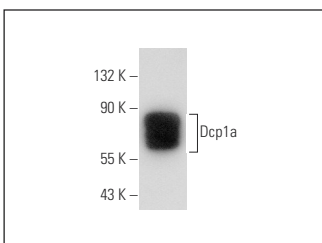
Molecular Weight of Dcp1a: 63 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409 or mouse brain extract: sc-2253.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: 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), 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 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.

DATA



Dcp1a (C-17): sc-22575. Western blot analysis of Dcp1a expression in mouse brain tissue extract.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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Try **Dcp1a (56-Y): sc-100706**, our highly recommended monoclonal alternative to Dcp1a (C-17).