3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-DCP1A (N-terminal)
produced in rabbit, affinity isolated antibody

Product Number **D5694**

Product Description

Anti-DCP1A (N-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to a sequence at N-terminal of human DCP1A (GeneID: 55802) conjugated to KLH. The corresponding sequence is identical in rat and mouse. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-DCP1A (N-terminal) specifically recognizes human and mouse DCP1A. The antibody may be used in several immunochemical techniques including immunoblotting (~70 kDa), immunofluorescence, and immunoprecipitation. Staining of the DCP1A band in immunoblotting is specifically inhibited with the immunizing peptide.

Decapping is a critical and highly regulated step in the turnover of mRNA which involves decapping enzymes that hydrolyze the cap structure at the 5′ mRNA. mRNA decay is initiated with the removal of the 3′ poly A, followed by degradation of the mRNA in a 5′ to 3′ or 3′ to 5′ direction. In the 5′ to 3′ decay pathway, the m7G mRNA cap is cleaved by Dcp1 (also known as DCP1 decapping enzyme homolog A, SMAD4IP1, and SMIF), Dcp2 and Hedls complex, in which Dcp2 is the catalytic subunit, and the mRNA is degraded by the major cytoplasmic 5′ to 3′ exonuclease XRN1.[1-3]

Dcp1 and Dcp2, conserved from yeast to mammals, colocalize in distinct cytoplasmic foci with other proteins involved in the 5′ to 3′ mRNA decay. These foci are termed PB (processing bodies) or DCP-bodies.[2,4] Two distinct genes of human DCP1 were identified, DCP1A and DCP1B, which share ~70% homology in their N-termini and ~30% homology in their full length.[1,2] No enzymatic activity is associated with the human DCP1 proteins but the enzymatic activity of DCP2 is critically dependent on DCP1 subunit *in vivo*.[1,2]

hDCP2 contains a highly conserved Nudix (nucleoside diphosphate linked to an X moiety) motif critical for the decapping activity.[5] It has been shown that Dcp2 is an RNA binding protein, which can cleave only cap structures that are linked to an RNA moiety, suggesting that Dcp2 can differentially associate with specific mRNAs.[6]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~1.0 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 1-2 μg/mL is recommended using lysates of HEK-293T cells over expressing human DCP1a.

Immunofluorescence: a working concentration of 2-5 μg/mL is recommended using paraformaldehyde fixed NIH-3T3 cells over-expressing human DCP1A.

Immunoprecipitation: a working amount of 5-10 μg is recommended using lysates of HEK-293T.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Lyke-Andersen, J., *Mol. Cell Biol*., **22**, 8114-8121 (2002).
2. van Dijk, K. et al., *EMBO J*., **21**, 6915-6024 (2002).
3. Fenger-Gron, M. et al., *Mol. Cell*, **20**, 905-915 (2005).
4. Fillman, C. et al., *Curr. Opin. Cell Biol*., **17**, 326-331 (2005).
5. Dunckley, T., and Parker, R., *EMBO J*., **18**, 5411-5422 (1999).
6. Li, Y. et al., *Mol. Cell Biol.,* **28**, 939-948 (2008).

VS,DS,PHC,MAM 01/19-1