# Zebrafish DCP2 Antibody / mRNA Decapping Enzyme (RZ1464)

| Catalog No. | Formulation | Size |
|---|---|---|
| RZ1464 | 0.5mg/ml if reconstituted with 0.2ml sterile DI water | 100 ug |

**Bulk quote request**

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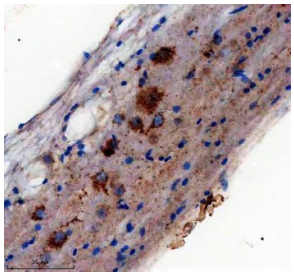
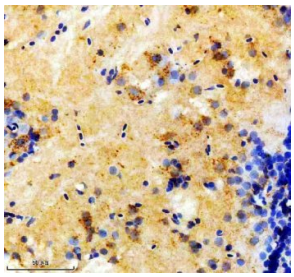
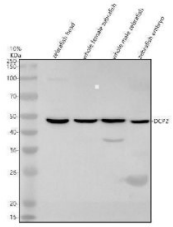
| **Species Reactivity** | Zebrafish |
| **Format** | Antigen affinity purified |
| **Host** | Rabbit |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit Ig |
| **Buffer** | Lyophilized from a buffered saline solution containing 2% trehalose. Reconstitute with 0.2 mL distilled water to yield a final antibody concentration of 500 ug/mL. |
| **UniProt** | Q803B9 |
| **Applications** | Western Blot : 0.5-1ug/ml<br>Immunohistochemistry (FFPE) : 2-5ug/ml |
| **Limitations** | This Zebrafish DCP2 Antibody / mRNA Decapping Enzyme is available for research use only. |



Zebrafish DCP2 Antibody Spinal Cord IHC. Immunohistochemical analysis of DCP2 expression was performed using anti-DCP2 antibody in paraffin-embedded zebrafish spinal cord tissue. DCP2, also known as mRNA Decapping Enzyme 2, is the catalytic component of the mRNA decapping complex that initiates 5â€²-to-3â€² mRNA degradation and regulates post-transcriptional gene expression. Cytoplasmic staining is observed throughout spinal cord cells, consistent with the localization of DCP2 within cytoplasmic processing bodies (P-bodies) where mRNA turnover and RNA quality control occur. The staining pattern supports the essential role of DCP2 in regulating transcript stability during neural development and maintaining cellular RNA homeostasis. These results support the utility of Zebrafish DCP2 Antibody for studies of RNA metabolism, post-transcriptional gene regulation, and vertebrate development. Heat-mediated antigen retrieval was performed in EDTA buffer, followed by incubation with DCP2 antibody at 2 ug/ml overnight at 4Â°C. Detection was achieved using a peroxidase-conjugated goat anti-rabbit IgG secondary antibody and DAB chromogen.



Zebrafish DCP2 Antibody Brain IHC. Immunohistochemical analysis of DCP2 expression was performed using anti-DCP2 antibody in paraffin-embedded zebrafish brain tissue. DCP2, also known as mRNA Decapping Enzyme 2, is the catalytic component of the mRNA decapping complex that initiates 5â€²-to-3â€² mRNA degradation and regulates post-transcriptional gene expression. Moderate cytoplasmic staining is observed in neuronal cells throughout the brain, consistent with the localization of DCP2 within cytoplasmic processing bodies (P-bodies) that coordinate mRNA turnover and RNA quality control. The widespread neuronal staining pattern supports the essential role of DCP2 in regulating transcript stability, neural development, and maintenance of cellular RNA homeostasis. These results support the utility of Zebrafish DCP2 Antibody for studies of RNA metabolism, post-transcriptional gene regulation, and vertebrate nervous system development. Heat-mediated antigen retrieval was performed in EDTA buffer, followed by incubation with DCP2 antibody at 2 ug/ml overnight at 4Â°C. Detection was achieved using a peroxidase-conjugated goat anti-rabbit IgG secondary antibody and DAB chromogen.



Zebrafish DCP2 Antibody WB. Western blot analysis of DCP2 expression was performed using anti-DCP2 antibody. Electrophoresis was carried out on a 10% SDS-PAGE gel under reducing conditions. Lane 1: zebrafish head tissue lysate. Lane 2: whole female zebrafish tissue lysate. Lane 3: whole male zebrafish tissue lysate. Lane 4: zebrafish embryo tissue lysate. DCP2, also known as mRNA Decapping Enzyme 2, is the catalytic component of the mRNA decapping complex that removes the 5â€² cap from messenger RNA to initiate transcript degradation and regulate post-transcriptional gene expression. A specific immunoreactive band is detected at approximately 48 kDa in all four samples, close to the expected molecular weight of DCP2 (~44 kDa). Similar expression in head, whole-body, and embryo lysates is consistent with the fundamental role of DCP2 in mRNA turnover, RNA quality control, and developmental gene regulation. These results support the utility of Zebrafish DCP2 Antibody for studies of RNA metabolism, post-transcriptional gene regulation, and vertebrate development.

## Description

Zebrafish DCP2 Antibody / mRNA Decapping Enzyme Antibody recognizes DCP2, the catalytic enzyme responsible for removing the 5' cap structure from messenger RNA (mRNA), a critical step in mRNA degradation and post-transcriptional gene regulation. As the principal decapping enzyme in eukaryotic cells, DCP2 controls mRNA stability, transcript turnover, and the timing of gene expression by initiating degradation through the 5' to 3' decay pathway. These highly conserved mechanisms are essential for embryonic development, cellular differentiation, and responses to environmental stress. Zebrafish provide an excellent vertebrate model for investigating RNA metabolism because developmental gene expression is tightly regulated by mRNA stability and degradation. Zebrafish DCP2 Antibody / mRNA Decapping Enzyme Antibody is therefore a valuable reagent for studies of post-transcriptional regulation and developmental biology.

Zebrafish DCP2 Antibody / mRNA Decapping Enzyme Antibody is useful for examining pathways that regulate RNA processing and gene expression. DCP2 functions within cytoplasmic processing bodies (P-bodies), where it associates with decapping activators, RNA helicases, and exonucleases to selectively remove the protective mRNA cap prior to degradation. By regulating transcript half-life, DCP2 influences protein synthesis, cellular differentiation, proliferation, and adaptation to developmental and environmental cues. Proper control of mRNA turnover ensures rapid changes in gene expression during embryogenesis and helps maintain cellular homeostasis throughout development and adult life.

Defects in mRNA decapping and RNA quality-control pathways have been linked to neurodevelopmental disorders, cancer, viral infection, and abnormalities in cellular stress responses. DCP2-mediated regulation of transcript stability influences numerous signaling pathways by determining which mRNAs are translated and which are targeted for degradation. Zebrafish models have become increasingly valuable for studying conserved mechanisms of RNA metabolism, tissue regeneration, and developmental gene regulation because alterations in mRNA stability can produce profound developmental phenotypes. DCP2 also contributes to cellular adaptation during stress by selectively regulating

the turnover of transcripts involved in survival and metabolism.

Zebrafish DCP2 Antibody / mRNA Decapping Enzyme Antibody is valuable for studies of RNA biology, post-transcriptional gene regulation, mRNA turnover, developmental signaling, and vertebrate embryogenesis. It supports investigations of RNA processing, stress-responsive gene expression, and mechanisms controlling cellular differentiation and tissue homeostasis. The highly conserved function of DCP2 in regulating mRNA stability makes Zebrafish DCP2 Antibody / mRNA Decapping Enzyme Antibody an important reagent for developmental, molecular, and translational research.

Explore our DCP2 Antibody / Post-Transcriptional Gene Regulator Antibody page for additional information on this essential regulator of mRNA turnover, transcript stability, and post-transcriptional gene expression.

This Zebrafish antibody is part of a broader Zebrafish / Danio rerio antibody panel offered by NSJ Bioreagents.

## Application Notes

The optimal working dilution of the Zebrafish DCP2 Antibody / mRNA Decapping Enzyme should be determined empirically by the investigator.

## Immunogen

An E.coli-derived Zebrafish DCP2 recombinant protein (amino acids Q79-E372) was used as the immunogen for the Zebrafish DCP2 Antibody.

## Storage

After reconstitution, the Zebrafish DCP2 Antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

## Alternate Names

Zebrafish DCP2 antibody, Zebrafish mRNA Decapping Enzyme antibody, Zebrafish Decapping Protein 2 antibody, Zebrafish mRNA Turnover Protein antibody, Zebrafish RNA Processing Enzyme antibody, Zebrafish P-Body Protein antibody