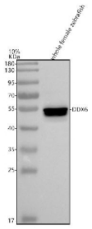
Zebrafish Ddx6 Antibody / DEAD box protein 6 (RZ1095)

Catalog No.	Formulation	Size
RZ1095	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	E7FD91
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish Ddx6 antibody is available for research use only.



Western blot analysis of Ddx6 protein using Zebrafish Ddx6 antibody and whole female zebrafish tissue lysate. The predicted molecular weight of Ddx6 is ~54 kDa.

Description

Zebrafish (Danio rerio) Ddx6 antibody detects DEAD box protein 6, a conserved ATP dependent RNA helicase involved in mRNA translation control, processing body formation, and post transcriptional gene regulation. In zebrafish, the ddx6 gene encodes a multifunctional RNA binding protein belonging to the DEAD box helicase family, characterized by signature motifs that coordinate ATP hydrolysis and RNA unwinding. DEAD box protein 6 participates in repression of translation, mRNA degradation, and assembly of cytoplasmic ribonucleoprotein granules, making DEAD box protein 6 antibody reagents valuable tools for investigating gene expression regulation during development.

Functionally, Ddx6 plays central roles in mRNA metabolism by promoting the transition of transcripts from active translation to storage or decay. It localizes to processing bodies and stress granules, where it works with decapping enzymes, deadenylation complexes, and translational repressors to remodel mRNPs. In zebrafish embryos, ddx6 is broadly expressed during early cleavage and gastrulation stages, reflecting its essential contribution to maternal mRNA clearance and the onset of zygotic transcriptional programs. Loss of ddx6 function disrupts proper transcript turnover, leading to developmental arrest and misregulation of key signaling pathways.

During neural and somatic development, Ddx6 influences cell fate decisions by regulating transcript availability and ribosome engagement. Its ATP driven helicase activity allows remodeling of RNA structures and displacement of RNA binding proteins, enabling dynamic control of translation in proliferating and differentiating tissues. Expression is particularly enriched in neural precursors, early muscle tissues, and rapidly dividing embryonic progenitor pools. These expression patterns align with Ddx6's critical role in synchronizing RNA metabolism with growth and differentiation cues.

In addition to its involvement in mRNA decay, Ddx6 participates in microRNA mediated silencing. It interacts with components of the microRNA induced silencing complex and contributes to the repression of microRNA targeted transcripts. This regulatory activity supports proper patterning signals during somitogenesis, axis formation, and organogenesis. Zebrafish models have shown that perturbation of microRNA pathways often produces phenotypes that overlap with ddx6 deficiency, highlighting the interconnected nature of these regulatory systems.

Subcellular localization of Ddx6 is primarily cytoplasmic, with strong enrichment in processing bodies where it coordinates RNA decay machinery. Known interaction partners include EDC4, DCP1A, LSM complexes, and RNA binding proteins involved in translational repression. These interactions situate Ddx6 at the interface of transcript storage, decay, and translational control, making it a key molecular regulator of post transcriptional gene expression during early vertebrate development.

Because mRNA dynamics shape tissue specification and morphogenesis, zebrafish provide a powerful system in which to study Ddx6 function in vivo. Disruption of ddx6 affects patterning pathways such as Wnt, FGF, and BMP signaling by altering the stability and translation of their downstream transcripts. This broad regulatory scope underscores the importance of Ddx6 as a molecular hub in RNA biology.

A Zebrafish Ddx6 antibody is suitable for research applications such as western blotting, immunohistochemistry, and other assays examining RNA metabolism, processing bodies, and post transcriptional regulation. This reagent detects endogenous Ddx6 without implying epitope mapping or literature validated specificity. NSJ Bioreagents provides the Zebrafish Ddx6 antibody to support studies of RNA helicase function, embryonic gene regulation, and cytoplasmic mRNP dynamics.

Application Notes

Optimal dilution of the Zebrafish Ddx6 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Ddx6 recombinant protein (amino acids I67-L484) was used as the immunogen for the Zebrafish Ddx6 antibody.

Storage

After reconstitution, the Zebrafish Ddx6 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.