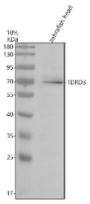
Zebrafish Tdrd3 Antibody / Tudor domain-containing protein 3 (RZ1096)

Catalog No.	Formulation	Size
RZ1096	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	Q6NYG6
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish Tdrd3 antibody is available for research use only.



Western blot analysis of Tdrd3 protein using Zebrafish Tdrd3 antibody and zebrafish head tissue lysate. The predicted molecular weight of Tdrd3 is ~73 kDa.

Description

Zebrafish (Danio rerio) Tdrd3 antibody detects Tudor domain-containing protein 3, an RNA binding regulatory factor involved in mRNA stability, transcriptional control, and formation of cytoplasmic ribonucleoprotein granules. In zebrafish, the tdrd3 gene encodes a conserved multidomain protein featuring a Tudor domain that recognizes methylated arginine residues and scaffolds involved in RNA metabolism. This modular architecture allows Tudor domain-containing protein 3 to act as an integrator of transcriptional activation pathways, stress response networks, and cytoplasmic RNA granule dynamics. These diverse functions make Tudor domain-containing protein 3 antibody reagents valuable tools for developmental and molecular biology research.

Tdrd3 participates in gene expression regulation at both nuclear and cytoplasmic levels. In the nucleus, it acts as a transcriptional coactivator, interacting with methylated transcription factors and RNA polymerase linked regulators to enhance expression of growth, survival, and differentiation related genes. Through recognition of arginine methylation marks, Tdrd3 participates in transcriptional networks dependent on protein arginine methyltransferases. In zebrafish, these pathways contribute to proper embryonic patterning, neural development, and early organ formation.

In the cytoplasm, Tdrd3 localizes to stress granules and processing bodies, where it influences RNA stability and translation in response to cellular stress or metabolic cues. Its ability to bind methylated proteins and RNA rich structures positions it at the interface of RNA metabolism and signaling. During zebrafish development, tdrd3 expression is detected in proliferative and differentiating tissues, including neural progenitors, somites, and early visceral organs. This expression pattern aligns with its roles in RNA processing, translational control, and stress adaptation during rapid embryonic growth.

Tdrd3 interacts with a variety of partners, including FMRP, transcriptional regulators, and RNA granule components, shaping its involvement in neurological and developmental pathways. In vertebrate models, Tdrd3 function has been linked to neuronal maturation, synaptic regulation, and behavioral phenotypes through modulation of RNA binding proteins and translational machinery. Although zebrafish specific mechanisms remain under study, conservation of structural domains strongly suggests parallel regulatory roles in neural development and RNA homeostasis.

Additional studies indicate that Tdrd3 participates in DNA damage response pathways by modulating transcripts associated with repair and survival. Its localization to processing bodies during stress further supports a role in buffering gene expression changes during environmental challenge. This functional versatility highlights Tdrd3 as a molecular coordinator that links chromatin level transcriptional programs with cytoplasmic RNA dynamics. Because of this integrative function, disruption of tdrd3 expression in zebrafish can alter tissue patterning, reduce stress resilience, and impair proper differentiation.

A Zebrafish Tdrd3 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays investigating RNA granules, transcriptional regulation, and post transcriptional control mechanisms. This reagent detects endogenous Tdrd3 without implying epitope mapping or literature validated specificity. NSJ Bioreagents provides the Zebrafish Tdrd3 antibody to support studies in RNA metabolism, developmental biology, neural maturation, and stress regulated gene expression.

Application Notes

Optimal dilution of the Zebrafish Tdrd3 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Tdrd3 recombinant protein (amino acids K216-R242) was used as the immunogen for the Zebrafish Tdrd3 antibody.

Storage

After reconstitution, the Zebrafish Tdrd3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.