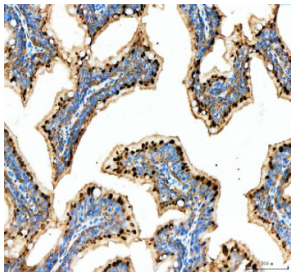
Zebrafish Mettl3 Antibody / Mt-a70 (RZ1141)

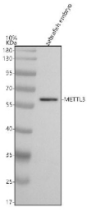
Catalog No.	Formulation	Size
RZ1141	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

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	F1R777
Localization	Nuclear, cytoplasmic
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Mettl3 antibody is available for research use only.



IHC staining of Mettl3 protein using Zebrafish Mettl3 antibody, HRP secondary and DAB substrate with zebrafish colon tissue lysate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot analysis Mettl3 protein using Zebrafish Mettl3 antibody with zebrafish embryo tissue lysate. The predicted molecular weight of Mettl3 is ~64 kDa.

Description

Zebrafish (Danio rerio) Mettl3 antibody detects Mettl3, the catalytically active core component of the mRNA methyltransferase complex responsible for installing N6-methyladenosine (m6A), the most abundant internal modification in eukaryotic mRNA. In zebrafish, the mettl3 gene encodes a protein also known as Mt-a70, a highly conserved methyltransferase required for m6A deposition on nascent transcripts. This modification influences RNA stability, splicing, translation efficiency, and developmental timing. Because m6A plays foundational roles in gene expression regulation, cell fate decisions, and embryonic patterning, Zebrafish Mettl3 antibody reagents are widely used in studies of RNA biology, epitranscriptomics, and vertebrate development.

Mettl3 functions within a multi-protein methyltransferase complex that includes Mettl14, Wtap, Virma, and other regulatory cofactors. Mt-a70 provides the catalytic activity, binding S-adenosylmethionine and transferring the methyl group onto adenosine residues within consensus sequence motifs. In zebrafish embryos, mettl3 is strongly expressed in proliferative and differentiating tissues such as the brain, somites, heart, and endodermal organs. These domains correlate with the requirement for dynamic m6A regulation during rapid developmental transitions.

m6A modification affects RNA metabolism at multiple levels. In vertebrates, m6A-marked transcripts frequently exhibit altered stability, translation rates, or nuclear export, depending on their association with reader proteins such as Ythdf and Ythdc family factors. Zebrafish studies show that Mettl3-dependent methylation regulates maternal-to-zygotic transition, neural development, germ cell specification, and organ patterning. Loss of mettl3 function disrupts mRNA turnover, impairs translational control, and leads to delays or defects in embryogenesis, demonstrating the essential nature of Mt-a70-mediated methylation.

Beyond global effects on gene expression, Mettl3 participates in specific developmental pathways by fine-tuning transcript lifespans and translation outputs. In zebrafish neural tissues, m6A modifications help regulate differentiation of progenitors and maturation of neuronal circuits. In mesodermal and cardiac tissues, Mettl3 influences transcriptional networks that determine cell fate and structural organization. These roles reflect the ability of m6A to act as a rapid-response regulatory layer that integrates transcriptional signals with post-transcriptional output.

At the molecular level, Mt-a70 localizes primarily to the nucleus, particularly to regions associated with active transcription. Its interactions with Mettl14 and Wtap help position the methyltransferase complex on chromatin near emerging transcripts. In zebrafish embryos, dynamic changes in Mettl3 localization correspond to shifts in developmental gene expression programs. Cytoplasmic pools of Mettl3 may also regulate RNA stability or translation under specific cellular conditions.

Disruption of m6A pathways is linked to defects in growth, stress responses, and differentiation across vertebrates. Because zebrafish allow live imaging and rapid genetic manipulation, they are an excellent model for examining the developmental consequences of altered methylation patterns. Studies using Mettl3-based reagents provide insights into how epitranscriptomic regulation shapes early patterning, metabolic adaptation, and lineage specification.

A Zebrafish Mettl3 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining mRNA methylation, epitranscriptomic control, and developmental gene regulation. This antibody targets Mettl3 for studies involving RNA processing, transcriptional coordination, and vertebrate embryonic development. NSJ Bioreagents provides the Zebrafish Mettl3 antibody to support research in RNA biology and developmental epigenetics.

Application Notes

Optimal dilution of the Zebrafish Mettl3 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Mettl3 recombinant protein (amino acids D381-D575) was used as the immunogen for the Zebrafish Mettl3 antibody.

Storage

After reconstitution, the Zebrafish Mettl3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.