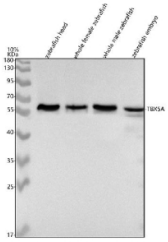
Zebrafish Tbx5a Antibody / Tbx5 / T-box protein 5a (RZ1320)

Catalog No.	Formulation	Size
RZ1320	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	Q9IAK8
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Tbx5a antibody is available for research use only.



Western blot analysis of Tbx5a protein using Zebrafish Tbx5a antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~55 kDa.

Description

Zebrafish Tbx5a antibody targets T-box protein 5a (Tbx5a), a transcription factor that plays a central role in embryonic patterning and organogenesis. In zebrafish, also known as Danio rerio, Tbx5a is a member of the T-box family of transcription factors, characterized by a conserved DNA-binding T-box domain that regulates gene expression programs required for proper tissue specification. Tbx5a localizes predominantly to the nucleus, consistent with its function in transcriptional regulation during early development. The protein is especially critical for the formation and patterning of the heart and pectoral fins, reflecting conserved roles in vertebrate cardiogenesis and limb development.

Tbx5a expression is spatially and temporally regulated during zebrafish embryogenesis. It is strongly expressed in the developing heart fields and fin buds, where it controls gene networks that govern cell proliferation, differentiation, and morphogenetic movements. Loss or reduction of Tbx5a activity in zebrafish results in pronounced cardiac defects, abnormal chamber formation, and impaired fin development, underscoring its essential role in early developmental processes. A Zebrafish Tbx5a antibody supports studies examining transcriptional control of organ development in Danio rerio.

Functionally, Tbx5a operates within complex regulatory networks that include other transcription factors and signaling pathways involved in mesodermal patterning. Through its T-box DNA-binding domain, Tbx5a binds target gene promoters and enhancers to activate or repress transcription depending on developmental context. This precise regulation ensures coordinated growth and structural organization of developing organs. A Zebrafish Tbx5a antibody enables analysis of expression patterns and regulatory dynamics associated with cardiac and fin morphogenesis.

From a biological and disease-relevance perspective, Tbx5 family proteins are extensively studied in mammals for their involvement in congenital heart disease and limb malformations. Zebrafish Tbx5a provides a conserved comparative model for investigating how transcriptional dysregulation during development leads to structural and functional abnormalities. Although zebrafish-specific paralogs exist due to genome duplication, Tbx5a retains key functional features that mirror those of mammalian Tbx5, allowing meaningful insight into conserved developmental mechanisms.

At the molecular level, zebrafish Tbx5a is encoded by the tbx5a gene and produces a protein of approximately 518 amino acids. The protein contains the defining T-box domain responsible for DNA binding and transcriptional regulation, along with additional regions that mediate protein-protein interactions. Regulation of Tbx5a expression and activity is tightly linked to developmental timing and tissue-specific cues. A Zebrafish Tbx5a antibody supports research applications focused on embryonic development, transcriptional regulation, and organ patterning in zebrafish, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

Optimal dilution of the Zebrafish Tbx5a antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Tbx5a recombinant protein (amino acids M1-S492) was used as the immunogen for the Zebrafish Tbx5a antibody.

Storage

After reconstitution, the Zebrafish Tbx5a antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.