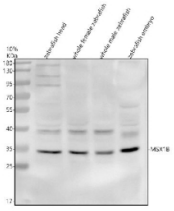
Zebrafish Msx1b Antibody / Msxb protein (RZ1197)

Catalog No.	Formulation	Size
RZ1197	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	B2GSG0
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Msx1b antibody is available for research use only.



Zebrafish Msx1b Antibody Tissue WB. Western blot analysis of Msx1b protein using Zebrafish Msx1b antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~28 kDa.

Description

Zebrafish Msx1b antibody detects Msx1b, a homeobox transcription factor involved in neural crest development, craniofacial patterning, fin formation, and apoptosis-mediated tissue sculpting. In zebrafish (Danio rerio), Msx1b belongs to the muscle segment homeobox family and functions as a transcriptional regulator that integrates extracellular signals to shape early developmental processes. Known in the literature as Msxb protein, Msx1b contributes to establishing boundaries between developing tissues, modulating cell fate decisions, and coordinating programmed cell death required for proper morphogenesis. Because Msx-family transcription factors are conserved across vertebrates, Zebrafish Msx1b antibody reagents support research in embryonic patterning, neural crest biology, and craniofacial development.

During early embryogenesis, msx1b is expressed in neural crest progenitors, dorsal neural tube regions, craniofacial primordia, and the developing fins. Msx1b helps control the differentiation and migration of cranial neural crest cells, influencing the formation of jaw structures, branchial arches, and cartilage elements. Its expression marks regions undergoing lateral inhibition, proliferative expansion, or apoptosis, making it a useful indicator of boundary formation and tissue remodeling. In the scientific literature, zebrafish proteins like Msx1b are often referenced using Danio rerio nomenclature, and terms such as Danio Msx1b or Danio rerio Msx1b appear interchangeably with zebrafish naming.

Msxb protein participates in multiple signaling interactions, including BMP, Wnt, and FGF pathways. These pathways converge on Msx transcription factors to regulate gene expression patterns that determine dorsal-ventral identity, neural crest fate, and epithelial organization. In craniofacial development, Msx1b helps delimit domains of chondrogenic differentiation, ensuring proper skeletal morphology. Its regulatory functions also contribute to patterning of the developing fins, where Msx1b shapes growth zones and influences regenerative responses.

In addition to promoting progenitor maintenance and boundary formation, Msx1b is well-known for its role in apoptosis. Specific embryonic regions require programmed cell death to sculpt anatomical structures, such as the shaping of fin rays and craniofacial elements. Msx1b regulates genes associated with apoptotic pathways, ensuring that tissue remodeling occurs with spatial and temporal precision.

At the molecular level, Msx1b acts as a transcriptional repressor, although it can also activate specific targets depending on its cofactor interactions. It binds DNA through a conserved homeodomain and partners with co-regulators that include Groucho-family repressors and chromatin remodeling complexes. Subcellular localization is nuclear, where Msx1b modulates enhancer and promoter activity across craniofacial and neural crest gene networks.

Msx1b expression continues to play roles beyond early embryogenesis, particularly in fin regeneration, where the reactivation of developmental programs mirrors those used during initial morphogenesis. Because zebrafish regenerate tissues efficiently, Msx1b is an informative marker for studies examining injury-induced gene expression, epithelial to mesenchymal transitions, and blastema formation.

A Zebrafish Msx1b antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining craniofacial development, neural crest differentiation, apoptosis, and fin patterning. This antibody targets Msxb protein for studies involving vertebrate morphogenesis and developmental gene regulation. NSJ Bioreagents provides the Zebrafish Msx1b antibody to support research in craniofacial and regenerative biology.

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

Application Notes

Optimal dilution of the Zebrafish Msx1b antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Msx1b recombinant protein (amino acids M1-H125) was used as the immunogen for the Zebrafish Msx1b antibody.

Storage

After reconstitution, the Zebrafish Msx1b antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.