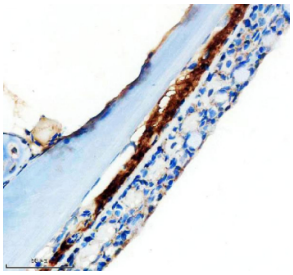
Zebrafish Mmp13a Antibody / Interstitial collagenase (RZ1189)

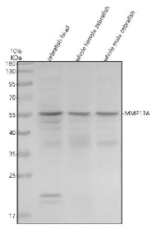
Catalog No.	Formulation	Size
RZ1189	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

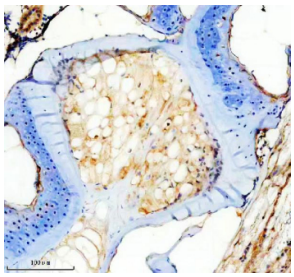
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	F1QCX8
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish Mmp13a antibody is available for research use only.



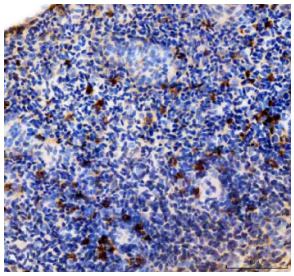
IHC staining of FFPE zebrafish skin tissue with Zebrafish Mmp13a antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot analysis of Mmp13a protein using Zebrafish Mmp13a antibody and 1) zebrafish head, 2) whole female zebrafish and 3) whole male zebrafish tissue lysate. Predicted molecular weight ~54 kDa.



IHC staining of FFPE zebrafish spinal column tissue with Zebrafish Mmp13a antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



IHC staining of FFPE zebrafish spleen tissue with Zebrafish Mmp13a antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Zebrafish (Danio rerio) Mmp13a antibody detects Mmp13a, a matrix metalloproteinase responsible for extracellular matrix remodeling during vertebrate development, tissue repair, and morphogenesis. Encoded in zebrafish by the mmp13a gene, Interstitial collagenase cleaves fibrillar collagens and other matrix substrates to regulate cell migration, skeletal development, angiogenesis, and remodeling of connective tissues. Mmp13a is one of the principal collagenases in teleosts and plays essential roles in shaping tissue architecture during rapid embryonic growth. Because extracellular matrix dynamics are central to organ formation, Zebrafish Mmp13a antibody reagents support research in developmental biology, skeletal patterning, wound healing, and tissue morphogenesis.

Mmp13a expression is tightly controlled during zebrafish embryogenesis. It appears in craniofacial structures, somites, fin buds, and developing skeletal elements where matrix turnover is required for growth and morphogenetic movement. In the craniofacial skeleton, Mmp13a contributes to cartilage remodeling, chondrocyte maturation, and endochondral ossification. Altered expression or activity of Mmp13-family proteases can affect jaw development, pharyngeal arch patterning, and skeletal integrity.

Beyond skeletal roles, Interstitial collagenase participates in tissue remodeling during angiogenesis, muscle formation, and organ budding. By degrading matrix barriers, Mmp13a enables migrating cells to reposition within developing tissues. This is particularly important in processes such as vertebral formation, neural crest migration, and fin regeneration. Zebrafish provide an excellent system for studying Mmp13a-mediated matrix dynamics because of their optical transparency and strong regenerative capacity.

Mmp13a is also a key regulator of wound healing and inflammatory responses. During tissue injury, Mmp13a is rapidly induced to remodel damaged matrix, clear debris, and facilitate leukocyte migration. Subsequent regulation ensures proper tissue restoration and prevents excessive matrix degradation. Zebrafish wound models have demonstrated that Mmp13a activity is critical for efficient re-epithelialization and collagen restructuring.

At the molecular level, Mmp13a is synthesized as a zymogen containing a pro-domain that maintains the enzyme in an inactive state. Proteolytic cleavage activates the enzyme, exposing its catalytic zinc-binding domain. Mmp13a has substrate specificity for type I, II, and III collagens, but it also processes a range of extracellular proteins including proteoglycans and matrix-associated signaling molecules. Because of this broad activity, Mmp13a influences pathways such as TGF beta, BMP, and Wnt by modulating their extracellular environments.

Subcellular localization of Mmp13a involves secretion into the extracellular space where it interacts with matrix components. Its activity is regulated by tissue inhibitors of metalloproteinases, ensuring balanced matrix turnover. During

zebrafish development, coordinated expression of Mmp13a and its inhibitors allows tissues to expand, remodel, and mature while maintaining structural integrity.

A Zebrafish Mmp13a antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining matrix remodeling, skeletal development, angiogenesis, wound healing, and regenerative processes. This antibody targets Interstitial collagenase for studies involving extracellular matrix biology and vertebrate morphogenesis. NSJ Bioreagents provides the Zebrafish Mmp13a antibody to support research in developmental, skeletal, and regenerative biology.

Application Notes

Optimal dilution of the Zebrafish Mmp13a antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Mmp13a recombinant protein (amino acids D110-K476) was used as the immunogen for the Zebrafish Mmp13a antibody.

Storage

After reconstitution, the Zebrafish Mmp13a antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.