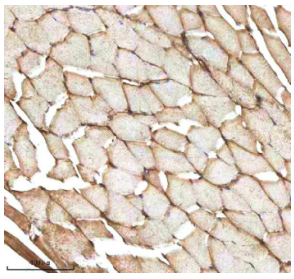
Zebrafish Mmp9 Antibody / Matrix metalloproteinase 9 (RZ1239)

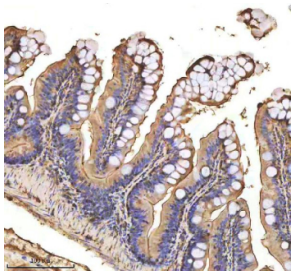
Catalog No.	Formulation	Size
RZ1239	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

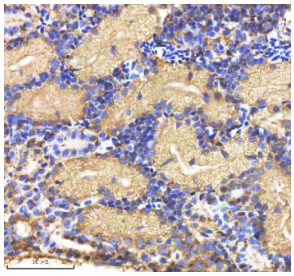
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q7T317
Localization	Cytoplasmic, nuclear, secreted
Applications	Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish Mmp9 antibody is available for research use only.



IHC staining of zebrafish Mmp9 protein using Zebrafish Mmp9 antibody, HRP-labeled secondary and DAB substrate. Mmp9 was detected in a paraffin-embedded section of zebrafish muscle tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



IHC staining of zebrafish Mmp9 protein using Zebrafish Mmp9 antibody, HRP-labeled secondary and DAB substrate. Mmp9 was detected in a paraffin-embedded section of zebrafish colon tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



IHC staining of zebrafish Mmp9 protein using Zebrafish Mmp9 antibody, HRP-labeled secondary and DAB substrate. Mmp9 was detected in a paraffin-embedded section of zebrafish kidney tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

The Zebrafish Mmp9 antibody targets Mmp9, a secreted matrix metalloproteinase essential for extracellular matrix remodeling, inflammation, wound repair, and developmental morphogenesis in Danio rerio. Zebrafish, also known as Danio rerio, express mmp9 as an inducible protease produced primarily by neutrophils, macrophages, epithelial cells, and remodeling tissues. Mmp9 is synthesized as a pro-enzyme that requires proteolytic activation before degrading extracellular matrix substrates such as collagen, gelatin, and elastin. Its activity supports cell migration, tissue restructuring, and inflammatory responses throughout zebrafish development and injury repair processes.

Mmp9 belongs to the matrix metalloproteinase family, a group of zinc-dependent endopeptidases involved in shaping tissue architecture and coordinating immune responses. In zebrafish embryos and larvae, mmp9 expression is low under homeostatic conditions but increases sharply following infection, inflammation, or tissue damage. A Zebrafish Mmp9 antibody is suitable for studies examining extracellular and pericellular patterns of protease accumulation in tissues undergoing remodeling or immune activation.

Functionally, Mmp9 regulates multiple processes involving extracellular matrix turnover. During inflammation, Mmp9 facilitates neutrophil and macrophage migration by breaking down matrix barriers and modulating chemokine gradients. In developmental contexts, Mmp9 contributes to fin fold remodeling, craniofacial cartilage maturation, and vascular morphogenesis. It also plays roles in epithelial wound closure, regeneration, and tissue reorganization by enabling dynamic structural changes at injury margins. Because zebrafish mount rapid and visible inflammatory responses, mmp9 expression serves as a highly sensitive marker for immune challenge and tissue remodeling activity.

Structurally, zebrafish Mmp9 contains a signal peptide for secretion, a pro-domain that maintains enzyme latency, a catalytic domain with a zinc-binding motif, and a hemopexin-like domain that mediates substrate specificity and protein-protein interactions. Zebrafish mmp9 maps to chromosome 11, where regulatory elements respond strongly to inflammatory cues such as NF-kappaB and cytokine signaling. Co-localization studies frequently detect Mmp9 around neutrophils and macrophages at wound sites or within remodeling epithelial and mesenchymal tissues.

A Zebrafish Mmp9 antibody is suitable for detecting Mmp9 in studies focused on extracellular matrix remodeling, inflammation, infection, tissue repair, and developmental morphogenesis in Danio rerio. Its secretion and accumulation around active immune or remodeling cells allow researchers to track matrix degradation, characterize inflammatory phenotypes, and assess environmental or genetic disruptions that alter tissue dynamics. Mmp9 is widely used as a readout in zebrafish models of wound healing, infection, regeneration, and developmental tissue sculpting. These features make the antibody a valuable tool for vertebrate immunology, tissue biology, and extracellular matrix research, and it is supplied for research use by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Mmp9 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Mmp9 recombinant protein (amino acids D33-L680) was used as the immunogen for the Zebrafish Mmp9 antibody.

Storage

After reconstitution, the Zebrafish Mmp9 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.