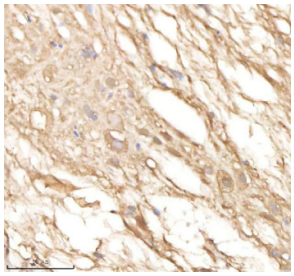
Zebrafish Psma5 Antibody / Proteasome subunit alpha type 5 (RZ1286)

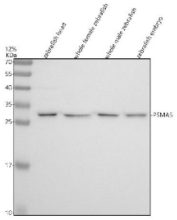
Catalog No.	Formulation	Size
RZ1286	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

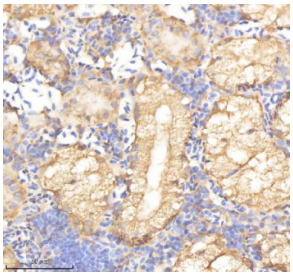
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q6TGV6
Localization	Cytoplasmic, Nuclear
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish Psma5 antibody is available for research use only.



Zebrafish Psma5 Antibody Spinal Tissue IHC. Immunohistochemistry staining of FFPE zebrafish spinal tissue with Psma5 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Psma5 Antibody Tissue WB. Western blot analysis of Psma5 protein using Zebrafish Psma5 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~26 kDa.



Zebrafish Psma5 Antibody Kidney Tissue IHC. Immunohistochemistry staining of FFPE zebrafish kidney tissue with Psma5 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

The Zebrafish Psma5 antibody targets Psma5, also known as Proteasome subunit alpha type 5, a core structural component of the 20S proteasome essential for intracellular protein degradation, proteostasis, and developmental signaling regulation in Danio rerio. Zebrafish, also known as Danio rerio, express psma5 broadly during embryogenesis, with high levels in proliferative and metabolically active tissues such as the developing brain, somites, heart, notochord, and endodermal organs. Psma5 localizes to the cytoplasm and nucleus as part of the assembled 20S proteasome core, forming one of the seven alpha-ring subunits that regulate substrate entry into the catalytic chamber.

Psma5 belongs to the alpha-ring family of proteasome subunits and contributes directly to scaffold formation, proteasome assembly, and structural gating. Its conserved N-terminal extensions help maintain the closed conformation of the 20S particle under resting conditions, opening in response to binding by regulatory complexes such as the 19S cap or PA28 activators. In zebrafish embryos, elevated psma5 expression corresponds to periods of rapid growth and differentiation requiring tightly regulated protein turnover. A Zebrafish Psma5 antibody is suitable for detecting cytoplasmic and nuclear expression across these regions, providing a marker for proteolytic activity and ubiquitin-dependent regulation.

Functionally, Psma5 is indispensable for proteasome-mediated degradation of misfolded, damaged, or short-lived regulatory proteins. The 20S proteasome plays a central role in controlling levels of transcription factors, cell-cycle regulators, metabolic enzymes, and signaling molecules. In zebrafish, proteasome activity coordinates major developmental pathways including Wnt, Notch, Fgf, Hedgehog, and NF-kB, shaping processes such as germ layer formation, neural differentiation, muscle patterning, and organogenesis. Disruption of psma5 expression or proteasome integrity leads to accumulation of ubiquitinated proteins, increased proteotoxic stress, impaired proliferation, and defects in tissue patterning. Because of its broad influence on developmental homeostasis, Psma5 is a valuable marker of proteolytic capacity and cellular stress management.

Structurally, zebrafish Psma5 forms part of the alpha-ring that caps the 20S proteasome core, contributing to pore gating and providing interfaces for regulatory particle docking. It contains conserved helices and interaction motifs that stabilize proteasome architecture and support proper assembly of the catalytic chamber. The zebrafish psma5 gene maps to chromosome 8 and is transcriptionally regulated by metabolic signals, stress pathways, and proliferative cues that influence proteasome biogenesis. Co-localization studies detect Psma5 in cytoplasmic regions rich in proteasome activity, overlapping with ubiquitin-positive sites, beta-subunit markers, and chaperone-associated quality-control machinery.

A Zebrafish Psma5 antibody is suitable for detecting Psma5 in studies focused on proteasome function, protein quality control, ubiquitin-mediated degradation, developmental proteostasis, and stress-response pathways in Danio rerio. Its nuclear and cytoplasmic distribution provides insight into tissue-specific degradation dynamics, enabling researchers to analyze proteasome dysfunction in genetic mutants, evaluate stress-induced proteotoxic states, and explore how controlled protein turnover influences organ formation and metabolic adaptation. This antibody is supplied for research use by NSJ Bioreagents.

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

Application Notes

Optimal dilution of the Zebrafish Psma5 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Psma5 recombinant protein (amino acids M1-I241) was used as the immunogen for the Zebrafish Psma5 antibody.

Storage

After reconstitution, the Zebrafish Psma5 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.