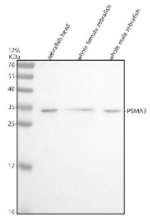
Zebrafish Psma3 Antibody / Proteasome subunit alpha type 3 (RZ1285)

Catalog No.	Formulation	Size
RZ1285	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	Q4V918
Applications	Western Blot: 0.5-1ug/ml
Limitations	This Zebrafish Psma3 antibody is available for research use only.



Zebrafish Psma3 Antibody Tissue WB. Western blot analysis of Psma3 protein using Zebrafish Psma3 antibody and 1) zebrafish head, 2) whole female zebrafish and 3) whole male zebrafish tissue lysate. Predicted molecular weight ~28 kDa.

Description

The Zebrafish Psma3 antibody targets Psma3, also known as Proteasome subunit alpha type 3, a core structural component of the 20S proteasome essential for protein degradation, proteostasis, and regulation of numerous developmental signaling pathways in Danio rerio. Zebrafish, also known as Danio rerio, express psma3 broadly during embryogenesis, with strong enrichment in proliferative and metabolically active tissues such as the developing brain, somites, notochord, heart, and endodermal organs. Psma3 localizes to the cytoplasm and nucleus as part of the assembled 20S catalytic core, where it forms one of the seven alpha-ring subunits responsible for controlling gated substrate entry into the proteolytic chamber.

Psma3 belongs to the alpha-ring family of proteasomal subunits and contributes to the scaffold architecture and structural stability of the 20S particle. Its conserved N-terminal region helps regulate pore opening, enabling precise substrate access when the proteasome engages regulatory particles such as the 19S cap or PA28 activators. In zebrafish embryos, psma3 expression corresponds with periods of rapid cell division, extensive protein remodeling, and high metabolic demand. A Zebrafish Psma3 antibody is suitable for detecting cytoplasmic and nuclear localization that aligns with regions where active protein degradation and ubiquitin-mediated turnover are required for proper development.

Functionally, Psma3 is indispensable for proteasome-mediated proteolysis. The 20S core degrades misfolded, damaged, short-lived, or regulatory proteins, enabling precise control of key developmental pathways, including Wnt, Notch, Hedgehog, Fgf, and NF-kB signaling. In zebrafish, this maintains germ layer patterning, neural and mesodermal differentiation, muscle formation, and organogenesis. Disruption of psma3 or proteasome function leads to accumulation of ubiquitinated proteins, increased proteotoxic stress, impaired cell-cycle progression, and defects in tissue patterning. Because proteasome activity is central to cellular homeostasis, Psma3 is a valuable marker for studies of protein turnover, stress-response pathways, and metabolic adaptation in zebrafish embryos.

Structurally, zebrafish Psma3 forms part of the alpha-ring that caps the 20S proteasome cylinder, providing docking sites for regulatory complexes and contributing to gating mechanisms that control substrate access. It contains conserved helices and surface features that support protein-protein interactions during proteasome assembly. The zebrafish psma3 gene maps to chromosome 14 and is regulated by metabolic stress signals, proliferative transcription factors, and pathways that influence proteasome biogenesis. Co-localization studies detect Psma3 in cytoplasmic and perinuclear zones, often overlapping with ubiquitin-rich regions, beta-ring subunits, and molecular chaperones involved in protein quality control.

A Zebrafish Psma3 antibody is suitable for detecting Psma3 in studies focused on proteasome assembly, ubiquitin-mediated protein degradation, developmental proteostasis, and signaling pathway regulation in Danio rerio. Its distribution across cytoplasmic and nuclear compartments provides insight into tissue-specific degradation capacity, enabling researchers to assess proteasome dysfunction, characterize stress responses, and explore how protein turnover influences organ formation. Because proteasome activity underpins nearly all aspects of developmental biology, Psma3 is widely used to evaluate gene regulation, metabolic adaptation, and proteotoxic stress in zebrafish research. 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 Psma3 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Psma3 recombinant protein (amino acids D84-R130) was used as the immunogen for the Zebrafish Psma3 antibody.

Storage

After reconstitution, the Zebrafish Psma3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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