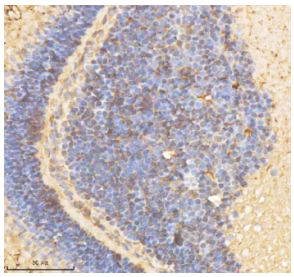
Zebrafish Psmd2 Antibody / 26S proteasome non-ATPase regulatory subunit 2 (RZ1292)

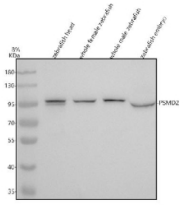
Catalog No.	Formulation	Size
RZ1292	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

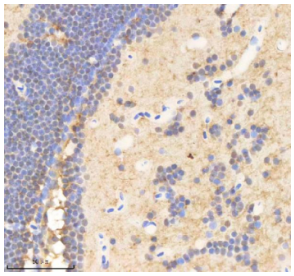
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q6PHK7
Localization	Cytoplasmic, Nuclear
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish Psmd2 antibody is available for research use only.



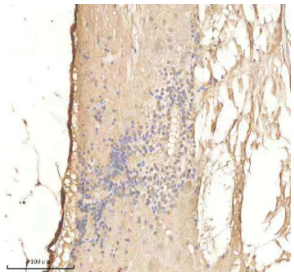
IHC staining of FFPE zebrafish eye tissue with Psmd2 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot analysis of Psmd2 protein using Zebrafish Psmd2 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~99 kDa.



IHC staining of FFPE zebrafish brain tissue with Psmd2 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 spinal tissue with Psmd2 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 Psmd2 antibody targets Psmd2, also known as 26S proteasome non-ATPase regulatory subunit 2, a core component of the 19S regulatory particle essential for substrate recognition, gating, and assembly of the functional 26S proteasome in Danio rerio. Zebrafish, also known as Danio rerio, express psmd2 widely during embryogenesis, with enriched levels in proliferative and metabolically active tissues including the developing brain, somites, notochord, heart, and endodermal organs. Psmd2 localizes to the cytoplasm and nucleus as part of the 19S base complex, where it participates in substrate recruitment, proteasome conformational regulation, and coordination between ubiquitin-binding factors and the AAA-ATPase ring.

Psmd2 belongs to the non-ATPase cohort of regulatory subunits and plays a structural role in stabilizing the interface between the 19S lid and base modules. It contributes to proper alignment of ubiquitin receptors, deubiquitinating enzymes, and ATP-driven unfolding machinery. In zebrafish embryos, high psmd2 expression reflects the requirement for active protein turnover as differentiation, metabolic shifts, and signaling cascades intensify. A Zebrafish Psmd2 antibody is suitable for detecting cytoplasmic and nuclear distribution consistent with zones of elevated proteasome engagement and regulatory protein degradation.

Functionally, Psmd2 is indispensable for proteasome assembly and substrate processing. It supports docking of ubiquitinated substrates, helps regulate conformational transitions that open the 20S core for protein entry, and participates in organizing proteasomal regulatory factors that trim ubiquitin chains. In zebrafish, Psmd2-mediated proteolysis influences major developmental pathways including Wnt, Notch, Hedgehog, Fgf, and NF-kB signaling. These pathways control germ layer specification, neural differentiation, muscle formation, cardiac development, and immune-metabolic responses. Loss or reduction of psmd2 disrupts 26S stability, impairs substrate processing, increases accumulation of ubiquitinated proteins, and leads to developmental delays or patterning defects due to insufficient turnover of essential regulators.

Structurally, zebrafish Psmd2 forms part of the scaffolding interface within the 19S regulatory particle, linking ubiquitin-binding modules to the ATPase ring. It contains conserved protein-interaction motifs that stabilize regulatory architecture and coordinate substrate positioning for ATP-dependent unfolding. The zebrafish psmd2 gene maps to chromosome 16 and is regulated by metabolic signals, stress-responsive transcription, and developmental regulators that influence proteasome biogenesis. Co-localization studies detect Psmd2 in perinuclear proteasome clusters, cytoplasmic degradation zones, and nuclei of transcriptionally active cells, frequently overlapping with ubiquitin accumulation sites, AAA-ATPase subunits, and 20S catalytic markers.

A Zebrafish Psmd2 antibody is suitable for detecting Psmd2 in studies focused on proteasome assembly, ubiquitin-mediated degradation, developmental proteostasis, regulatory signaling dynamics, and stress-response pathways in Danio rerio. Its localization across nuclear and cytoplasmic compartments provides a clear readout of proteolytic demand during embryogenesis, enabling researchers to investigate degradation defects, model proteotoxic stress, and analyze how turnover of key transcription factors and signaling intermediates shapes organ development. This antibody is supplied for research use by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Psmd2 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Psmd2 recombinant protein (amino acids S209-A897) was used as the immunogen for the Zebrafish Psmd2 antibody.

Storage

After reconstitution, the Zebrafish Psmd2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.