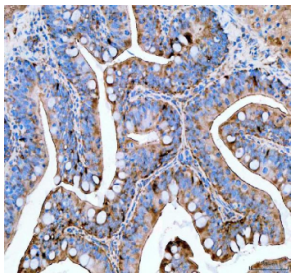
Zebrafish Psmc4 Antibody / 26S proteasome regulatory subunit 6B (RZ1168)

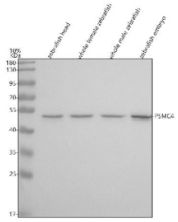
Catalog No.	Formulation	Size
RZ1168	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

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	B0R1D0
Localization	Nuclear, cytoplasmic
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Psmc4 antibody is available for research use only.



IHC staining of FFPE zebrafish colon tissue with Zebrafish Psmc4 antibody, HRP secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Western blot analysis of Psmc4 protein using Zebrafish Psmc4 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~47 kDa.

Description

Zebrafish (Danio rerio) Psmc4 antibody detects Psmc4, a highly conserved AAA+ ATPase that functions as part of the 19S regulatory particle of the 26S proteasome complex. Encoded in zebrafish by the psmc4 gene, 26S proteasome regulatory subunit 6B plays a central role in substrate recognition, unfolding, and translocation during ubiquitin-dependent protein degradation. Because the proteasome governs turnover of regulatory proteins controlling cell cycle progression, developmental signaling, and metabolic homeostasis, Zebrafish Psmc4 antibody reagents support research in proteostasis, ubiquitin biology, and vertebrate embryonic development.

The 26S proteasome consists of a 20S catalytic core and a 19S regulatory particle. Psmc4, one of six AAA+ ATPases in the 19S base, forms part of the heterohexameric ATPase ring that drives substrate unfolding and entry into the proteolytic chamber. Through ATP hydrolysis, Psmc4 contributes to substrate engagement, conformational remodeling of the proteasome, and regulated gating of the 20S core. In zebrafish embryos, psmc4 is broadly expressed in proliferative and differentiating tissues, including neural structures, somites, heart, and developing organs where active protein turnover is essential for morphogenesis.

Proteasome function underlies multiple developmental processes. Timely degradation of transcription factors, signaling mediators, and cell cycle regulators ensures proper tissue patterning and progression through embryonic stages. Altered Psmc4 activity may impair ubiquitin-dependent degradation, leading to accumulation of regulatory proteins and disruption of developmental timing. Studies in other vertebrates show that proteasomal ATPases influence pathways such as Wnt, Notch, NF-kB, and Hedgehog, all of which guide zebrafish organogenesis.

Psmc4 also contributes to cellular stress responses. Proteasome activity is indispensable during oxidative stress, ER stress, and metabolic challenge when misfolded or damaged proteins accumulate. The ATPase components, including Psmc4, participate in remodeling proteasome conformations that accommodate altered substrate loads. In zebrafish, these mechanisms are important as embryos experience rapid metabolic shifts and environmental fluctuations that place high demand on protein quality control systems.

At the molecular level, 26S proteasome regulatory subunit 6B contains conserved ATP-binding Walker motifs essential for substrate unfolding. Structural studies of related ATPases show that they act as molecular motors, pulling substrates through the central pore into the catalytic core. Psmc4's position within the hexamer contributes to coordination of ATP hydrolysis cycles across the ring, promoting efficient proteolysis. Subcellular localization is primarily cytoplasmic and nuclear, reflecting the widespread distribution of the 26S proteasome across cellular compartments.

The proteasome integrates metabolic, transcriptional, and signaling inputs to maintain proteome balance. In zebrafish, dynamic protein degradation supports developmental transitions, controls differentiation, and regulates stress resilience. Because many developmental pathways require precisely timed protein turnover, Psmc4 is an essential regulator of embryonic physiology.

A Zebrafish Psmc4 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining ubiquitin-dependent degradation, proteasome function, developmental signaling, and proteostasis. This antibody targets Psmc4 for studies involving proteolytic regulation, cellular growth control, and mitochondrial-linked metabolic adaptation. NSJ Bioreagents provides the Zebrafish Psmc4 antibody to support research in protein quality

control and developmental biology.

Application Notes

Optimal dilution of the Zebrafish Psmc4 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Psmc4 recombinant protein (amino acids M1-D410) was used as the immunogen for the Zebrafish Psmc4 antibody.

Storage

After reconstitution, the Zebrafish Psmc4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.