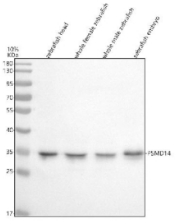
Zebrafish Psmd14 Antibody / 26S proteasome non-ATPase regulatory subunit 14 (RZ1271)

Catalog No.	Formulation	Size
RZ1271	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	A3KNN5
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Psmd14 antibody is available for research use only.



Western blot analysis of Psmd14 protein using Zebrafish Psmd14 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~35 kDa.

Description

The Zebrafish Psmd14 antibody targets Psmd14, also known as 26S proteasome non-ATPase regulatory subunit 14, a core deubiquitinating component of the 19S regulatory particle essential for proteasome-mediated protein degradation, developmental proteostasis, and signaling regulation in Danio rerio. Zebrafish, also known as Danio rerio, express psmd14 strongly in proliferative and metabolically active tissues, including the developing brain, somites, notochord, heart, and endodermal organs. Psmd14 localizes to the cytoplasm and nucleus as part of the 26S proteasome complex, where it removes ubiquitin chains from substrates before their entry into the proteolytic chamber, ensuring both substrate

processing and ubiquitin recycling.

Psmd14 belongs to the JAMM/MPN metalloprotease family and functions as one of the key deubiquitinases in the proteasome lid. It plays a central role in regulating substrate selectivity, degradation timing, and the overall fidelity of the ubiquitin-proteasome system. In zebrafish embryos, psmd14 expression rises during rapid cell proliferation and organ formation, supporting protein quality control, turnover of regulatory factors, and stress-response pathways. A Zebrafish Psmd14 antibody is suitable for detecting cytoplasmic and nuclear distribution in tissues where active proteolysis and ubiquitin-mediated signaling are crucial for developmental progression.

Functionally, Psmd14 is required for maintaining cellular and developmental homeostasis. By removing polyubiquitin chains, Psmd14 enables the regulated degradation of misfolded, damaged, or short-lived proteins. This activity influences key pathways including cell cycle control, transcription factor turnover, metabolic regulation, and stress-response signaling. In zebrafish, disruption of psmd14 impairs proteasome function, leads to developmental arrest, and affects neural and somatic tissue differentiation due to accumulation of ubiquitinated proteins and impaired regulatory turnover. Psmd14 also supports signaling systems such as Wnt, Notch, and NF-kB through controlled degradation of pathway components, linking proteostasis to developmental patterning.

Structurally, zebrafish Psmd14 contains the metalloprotease JAMM motif required for deubiquitinating activity, along with regulatory domains that integrate it into the proteasome lid. These conserved structural elements allow Psmd14 to interact with ubiquitinated substrates, proteasome lid subunits, and ubiquitin-recycling factors. Zebrafish psmd14 maps to chromosome 18, with expression controlled by developmental growth signals, metabolic demands, and stress-induced transcriptional programs. Co-localization studies detect Psmd14 in proteasome-rich cytoplasmic regions, perinuclear zones, and proliferative domains, often overlapping with markers of protein turnover and cellular stress management.

A Zebrafish Psmd14 antibody is suitable for detecting Psmd14 in studies focused on ubiquitin-proteasome biology, proteostasis regulation, cell cycle control, developmental signaling, and stress-response pathways in Danio rerio. Its distribution within the proteasome complex enables researchers to evaluate proteolytic capacity, map areas of high protein turnover, analyze mutants affecting ubiquitin signaling, and study how proteostasis influences embryonic patterning and organogenesis. Because the proteasome is fundamental to nearly all aspects of developmental biology, Psmd14 serves as a valuable marker for protein degradation pathways and regulatory turnover. This antibody is supplied for research use by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Psmd14 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Psmd14 recombinant protein (amino acids D21-H310) was used as the immunogen for the Zebrafish Psmd14 antibody.

Storage

After reconstitution, the Zebrafish Psmd14 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.