# Zebrafish Psmb1 Antibody / Proteasome subunit beta type 1 (RZ1287)

| Catalog No. | Formulation | Size |
|---|---|---|
| RZ1287 | 0.5mg/ml if reconstituted with 0.2ml sterile DI water | 100 ug |

**Bulk quote request**

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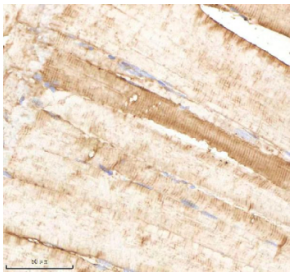
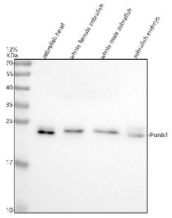
| **Availability** | 2-3 weeks |
| **Species Reactivity** | Zebrafish |
| **Format** | Antigen affinity purified |
| **Host** | Rabbit |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit Ig |
| **Purity** | Antigen affinity chromatography |
| **Buffer** | Lyophilized from 1X PBS with 2% Trehalose |
| **UniProt** | Q6DRF3 |
| **Localization** | Cytoplasmic, Nuclear |
| **Applications** | Western Blot : 0.5-1ug/ml<br>Immunohistochemistry (FFPE) : 2-5ug/ml |
| **Limitations** | This Zebrafish Psmb1 antibody is available for research use only. |



Zebrafish Psmb1 Antibody Muscle Tissue IHC. Immunohistochemistry staining of FFPE zebrafish muscle tissue with Psmb1 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Psmb1 Antibody Tissue WB. Western blot analysis of Psmb1 protein using Zebrafish Psmb1 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~26 kDa.

## Description

The Zebrafish Psmb1 antibody targets Psmb1, also known as Proteasome subunit beta type 1, a catalytic core component of the 20S proteasome essential for intracellular protein degradation, proteostasis, and regulation of key developmental pathways in Danio rerio. Zebrafish, also known as Danio rerio, express psmb1 broadly during embryogenesis with strong enrichment in the developing brain, somites, notochord, heart, and endodermal organs. Psmb1 localizes to the cytoplasm and nucleus as part of the maturing beta-ring of the 20S proteasome core, contributing to the proteolytic machinery that removes ubiquitinated, misfolded, or regulatory proteins during tissue growth and differentiation.

Psmb1 belongs to the beta-ring family of proteasome subunits and participates in the formation of the catalytic chamber responsible for peptide bond hydrolysis. Although Psmb1 itself is a non-catalytic beta subunit, it helps stabilize proteasome core assembly, supports proper maturation of catalytic beta subunits, and ensures structural integrity of the proteolytic cylinder. In zebrafish embryos, high psmb1 expression aligns with periods of rapid cell division, metabolic switching, and morphogenic remodeling that require continuous protein turnover. A Zebrafish Psmb1 antibody is suitable for detecting cytoplasmic and nuclear localization consistent with active proteasome function across diverse tissues.

Functionally, Psmb1 is essential for proteasome activity and organismal development. The 20S proteasome regulates turnover of key developmental regulators involved in Wnt, Notch, Hedgehog, Fgf, and NF-kB signaling. In zebrafish, this ensures proper germ layer formation, neural development, muscle differentiation, organogenesis, and cellular stress management. Disruption of psmb1 expression impairs proteasome assembly, leads to accumulation of ubiquitinated proteins, induces proteotoxic stress, and results in abnormal developmental patterning. Because developmental progression depends heavily on precise removal of short-lived transcription factors and signaling intermediates, Psmb1 serves as a critical indicator of proteolytic capacity and protein quality control.

Structurally, zebrafish Psmb1 is one of seven beta subunits forming the inner proteolytic ring of the 20S particle. It contains conserved structural motifs required for proteasome assembly as well as interfaces for interaction with alpha subunits and regulatory complexes. The zebrafish psmb1 gene maps to chromosome 1 and is transcriptionally regulated by developmental cues, metabolic stress, and pathways that modulate proteasome biogenesis. Co-localization studies detect Psmb1 in perinuclear and cytoplasmic regions rich in proteasome activity, often overlapping with ubiquitin accumulation sites, heat-shock proteins, and catalytic beta subunit markers.

A Zebrafish Psmb1 antibody is suitable for detecting Psmb1 in studies of proteasome biology, ubiquitin-mediated protein degradation, developmental proteostasis, stress-response pathways, and tissue-specific protein turnover in Danio rerio. Its distribution across cytoplasmic and nuclear compartments enables researchers to evaluate proteasome integrity, analyze degradation defects in genetic mutants, map regions of high proteolytic demand, and explore how protein turnover influences organ formation and metabolic homeostasis. Because the proteasome plays a fundamental role in nearly every developmental pathway, Psmb1 is widely used as a marker of protein quality control and regulatory degradation in zebrafish systems. 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 Psmb1 antibody should be determined by the researcher.

## Immunogen

E. coli-derived zebrafish Psmb1 recombinant protein (amino acids Y18-D237) was used as the immunogen for the Zebrafish Psmb1 antibody.

## Storage

After reconstitution, the Zebrafish Psmb1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.