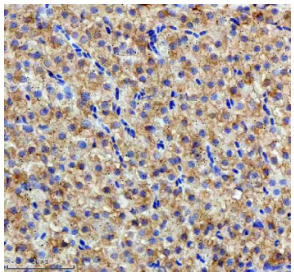
Zebrafish Hspa5 Antibody / Grp78 / Bip (RZ1181)

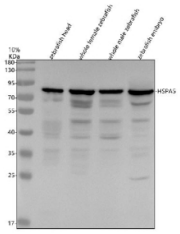
Catalog No.	Formulation	Size
RZ1181	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

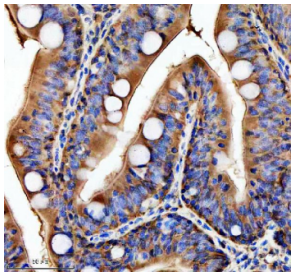
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q7SZD3
Localization	Cytoplasm (ER)
Applications	Western Blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml
Limitations	This Zebrafish Hspa5 antibody is available for research use only.



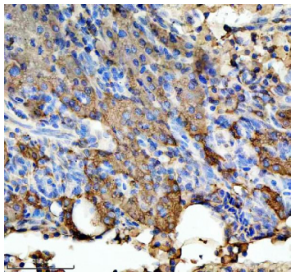
Zebrafish Hspa5 Antibody Liver Tissue IHC. Immunohistochemistry staining of FFPE zebrafish liver tissue with Hspa5 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



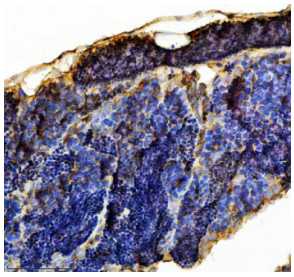
Zebrafish Hspa5 Antibody Tissue WB. Western blot analysis of Hspa5 protein using Zebrafish Hspa5 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight: ~72 kDa, but routinely observed at 70-78 kDa.



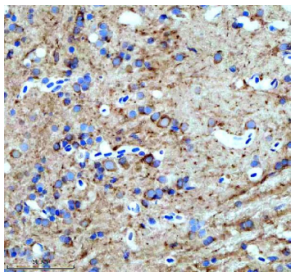
Zebrafish Hspa5 Antibody Colon Tissue IHC. Immunohistochemistry staining of FFPE zebrafish colon tissue with Hspa5 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



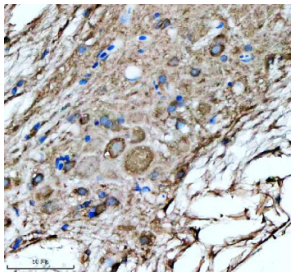
Zebrafish Hspa5 Antibody Pancreas Tissue IHC. Immunohistochemistry staining of FFPE zebrafish pancreas tissue with Hspa5 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



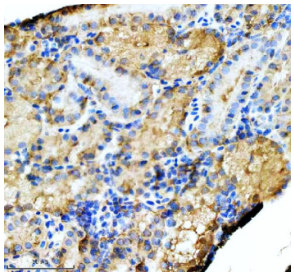
Zebrafish Hspa5 Antibody Testis Tissue IHC. Immunohistochemistry staining of FFPE zebrafish testis tissue with Hspa5 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Hspa5 Antibody Brain Tissue IHC. Immunohistochemistry staining of FFPE zebrafish brain tissue with Hspa5 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Hspa5 Antibody Spinal Cord Tissue IHC. Immunohistochemistry staining of FFPE zebrafish spinal cord tissue with Hspa5 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Hspa5 Antibody Kidney Tissue IHC. Immunohistochemistry staining of FFPE zebrafish kidney tissue with Hspa5 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Zebrafish (Danio rerio) Hspa5 antibody detects Hspa5, a central endoplasmic reticulum chaperone that maintains protein-folding homeostasis and regulates stress signaling. Encoded by the hspa5 gene, Grp78 (also known as Bip) is a major heat shock protein 70 family member responsible for binding nascent polypeptides, preventing misfolding, and ensuring proper protein maturation within the ER. Because ER function is fundamental to embryonic growth, metabolic regulation, and secretory pathway development, Zebrafish Hspa5 antibody reagents support research in proteostasis, stress responses, organogenesis, and signaling pathway regulation.

Hspa5 is a master regulator of the unfolded protein response (UPR). Under non-stress conditions, Hspa5 binds and sequesters ER stress sensors such as Ire1, Perk, and Atf6, maintaining them in an inactive state. When unfolded or misfolded proteins accumulate, Hspa5 is recruited to these substrates, releasing UPR sensors to trigger downstream signaling. This activation restores ER homeostasis through transcriptional upregulation of chaperones, attenuation of global protein synthesis, and expansion of ER folding capacity. In zebrafish, the UPR is active during early development, particularly in tissues with high secretory demands including the liver, pancreas, notochord, and developing lens.

The expression of Grp78 increases during periods of rapid cell proliferation, metabolic transition, or environmental stress. Zebrafish embryos experience substantial biosynthetic loads during morphogenesis, and Hspa5 supports these demands by stabilizing unfolded proteins, facilitating transport across the ER membrane, and regulating ER-associated degradation. Disruption of hspa5 can impair organ formation, influence apoptosis, and disturb signaling pathways such as FGF, Hedgehog, and Wnt that require proper receptor trafficking and maturation.

Beyond its roles in protein folding and stress management, Bip directly influences cell fate decisions. Activation of the UPR can promote survival, differentiation, or apoptosis depending on developmental context. Hspa5 acts as a molecular switch that determines how cells respond to metabolic imbalance or secretory burden. In zebrafish models, altered Hspa5 activity affects hematopoietic stem cell specification, neural tube patterning, and pancreatic development, reflecting its broad regulatory spectrum.

At the molecular level, Hspa5 contains conserved ATPase and substrate-binding domains that mediate its chaperone activity. It interacts with ER-resident co-chaperones including DNAJ proteins and nucleotide exchange factors that assist protein folding. Subcellular localization of Hspa5 is predominantly within the ER lumen, but under certain stress conditions it can translocate to the cell surface or be secreted, roles that have been implicated in immunity and tissue remodeling in vertebrates.

Grp78 also contributes to calcium homeostasis and ER structural integrity, supporting signaling pathways that depend on controlled calcium release. In zebrafish, these activities are essential for muscle formation, cardiomyocyte differentiation, and endocrine tissue function. Because the ER integrates metabolic, hormonal, and developmental information, Hspa5 sits at a key intersection of these processes.

A Zebrafish Hspa5 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining ER stress, proteostasis, UPR activation, and developmental signaling. This antibody targets Grp78 and Bip for studies involving secretory pathway maturation, stress adaptation, and vertebrate organogenesis. NSJ Bioreagents provides the Zebrafish Hspa5 antibody to support research in ER biology and developmental physiology.

For additional antibodies targeting HSPA5, including products validated across multiple species and applications, visit our GRP78 Antibody page for endoplasmic reticulum stress and protein-folding research.

This Zebrafish antibody is part of a broader Zebrafish / Danio rerio antibody panel offered by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Hspa5 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Hspa5 recombinant protein (amino acids D103-L650) was used as the immunogen for the Zebrafish Hspa5 antibody.

Storage

After reconstitution, the Zebrafish Hspa5 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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