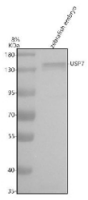
Zebrafish Usp7 Antibody / Ubiquitin-specific-processing protease 7 (RZ1068)

Catalog No.	Formulation	Size
RZ1068	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	F1QUS9
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Usp7 antibody is available for research use only.



Western blot analysis of Usp7 protein using Zebrafish Usp7 antibody and zebrafish embryo tissue lysate. The expected molecular weight of Usp7 is 128-135 kDa.

Description

Zebrafish (Danio rerio) Usp7 antibody recognizes Ubiquitin-specific-processing protease 7, a conserved deubiquitinating enzyme encoded by the zebrafish usp7 gene. Usp7 plays critical roles in regulating protein stability, chromatin organization, transcriptional control, and stress-response pathways by removing ubiquitin moieties from selected substrates. In Danio rerio embryos, usp7 is expressed broadly and with notable enrichment in developing brain, neural tube, somites, heart, vasculature, and endoderm-derived organs such as liver, intestine, and pancreas. Subcellular

localization includes nucleus and cytoplasm, consistent with Usp7's diverse regulatory functions in genome maintenance, proteostasis, and signaling.

Ubiquitin-specific-processing protease 7 is central to maintaining balanced ubiquitin signaling during embryogenesis. By reversing ubiquitination, Usp7 modulates turnover of transcription factors, histone-modifying enzymes, DNA repair mediators, and signaling proteins. These actions influence cell cycle progression, lineage commitment, metabolic adaptation, and cellular stress resilience. Proper Usp7 activity ensures that zebrafish embryos maintain stability in rapidly changing proteomes as cells transition from proliferative to differentiated states across tissues.

Neural development requires extensive Usp7-mediated regulation. Neural progenitors depend on balanced deubiquitination of transcription factors and chromatin regulators to control neuroepithelial proliferation, differentiation timing, and regional patterning. In differentiating neurons, Usp7 influences axon formation, synaptic maturation, and responses to oxidative and metabolic stress. Because the developing brain experiences high transcriptional and metabolic flux, Usp7 helps maintain genome integrity and prevent accumulation of misfolded or ubiquitinated proteins that could impair neural circuit assembly.

Cardiac and vascular development also rely on Usp7. During cardiogenesis, Usp7 modulates stability of regulatory proteins that control cardiomyocyte growth, contractile maturation, and chamber formation. In endothelial tissues, Usp7 contributes to pathways that guide angiogenic sprouting, cell polarity, junctional organization, and vessel stabilization. Disruption of usp7 can interfere with vascular branching, impair lumen formation, or alter endothelial resilience to hemodynamic stress.

Somite and muscle development depend on Usp7 to regulate the turnover of proteins involved in myogenic differentiation, cytoskeletal remodeling, and sarcomere assembly. As somites segment and muscle fibers form, cells require precise ubiquitin signaling to coordinate proliferation and differentiation. Usp7 supports myotome organization by ensuring stability of transcriptional regulators, signaling intermediates, and structural proteins essential for early muscle architecture.

Endoderm-derived organs depend on Usp7 due to their high metabolic activity and dynamic transcriptional programs. Developing liver and pancreas require balanced deubiquitination for metabolic gene regulation, stress adaptation, and differentiation. Usp7 affects pathways that guide hepatocyte maturation, endocrine lineage specification, and cellular responses to fluctuating nutrient states. Usp7 also contributes to DNA repair and genome stability, essential during phases of rapid tissue expansion.

Beyond organ-specific roles, Usp7 influences global proteostasis by regulating ubiquitin turnover, stress-response pathways, and genome maintenance machinery. Zebrafish embryos exposed to oxidative, metabolic, or environmental stress rely on Usp7 to maintain protein fidelity and support survival during development.

This Zebrafish Usp7 antibody is suitable for detecting Ubiquitin-specific-processing protease 7 in research involving ubiquitin signaling, neural development, cardiac and vascular biology, muscle formation, and metabolic organogenesis in zebrafish. NSJ Bioreagents provides this reagent within its zebrafish and ubiquitin-pathway antibody collection.

Application Notes

Optimal dilution of the Zebrafish Usp7 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Usp7 recombinant protein (amino acids L259-D491) was used as the immunogen for the Zebrafish Usp7 antibody.

Storage

After reconstitution, the Zebrafish Usp7 antibody can be stored for up to one month at 4oC. For long-term, aliquot and

store at -20oC. Avoid repeated freezing and thawing.