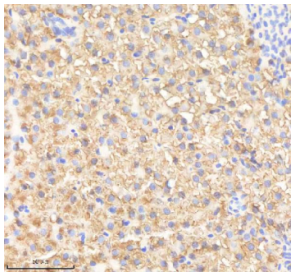
Zebrafish Prdx4 Antibody / Peroxiredoxin 4 (RZ1279)

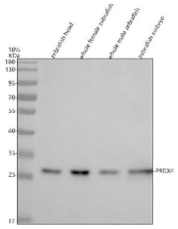
Catalog No.	Formulation	Size
RZ1279	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

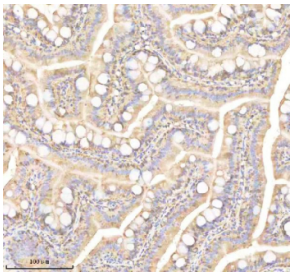
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	A3KP44
Localization	Cytoplasm
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This Zebrafish Prdx4 antibody is available for research use only.



Zebrafish Prdx4 Antibody Liver Tissue IHC. Immunohistochemistry staining of FFPE zebrafish liver tissue with Prdx4 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Prdx4 Antibody Tissue WB. Western blot analysis of Prdx4 protein using Zebrafish Prdx4 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~29 kDa.



Zebrafish Prdx4 Antibody Colon Tissue IHC. Immunohistochemistry staining of FFPE zebrafish colon tissue with Prdx4 antibody, HRP-labeled secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

The Zebrafish Prdx4 antibody targets Prdx4, also known as Peroxiredoxin 4, an antioxidant enzyme essential for redox homeostasis, protein folding, oxidative stress management, and secretory pathway function in Danio rerio. Zebrafish, also known as Danio rerio, express prdx4 in a wide range of developing tissues, with notable enrichment in liver, pancreas, brain, notochord, and immune-associated cells. Prdx4 localizes primarily to the endoplasmic reticulum (ER) and secretory compartments, where it detoxifies peroxides and supports disulfide bond formation during protein maturation. Its role in regulating intracellular redox balance is critical during rapid embryonic growth when reactive oxygen species levels fluctuate substantially.

Prdx4 belongs to the typical 2-Cys peroxiredoxin family and contains conserved catalytic cysteine residues that undergo redox cycling as they convert hydrogen peroxide and organic peroxides into water and corresponding alcohols. In zebrafish embryos, Prdx4 expression increases in metabolically active tissues and in regions undergoing extensive protein synthesis. A Zebrafish Prdx4 antibody is suitable for detecting ER-enriched expression patterns associated with secretory activity, redox buffering, and oxidative stress responses.

Functionally, Prdx4 plays a dual role as both an antioxidant enzyme and a facilitator of oxidative protein folding. Within the ER, Prdx4 interacts with protein disulfide isomerases to promote efficient disulfide bond formation, supporting the maturation of secreted and membrane-bound proteins. In zebrafish, Prdx4 contributes to liver and pancreatic development, immune cell maturation, and maintenance of oxidative homeostasis during organogenesis. Loss or reduction of prdx4 expression can impair redox balance, increase oxidative stress, disrupt proper folding of secreted proteins, and produce defects in metabolic tissues or stress-responsive developmental pathways. Prdx4 activity also influences inflammatory signaling and cellular protection during oxidative challenges, making it relevant for toxicology and disease modeling.

Structurally, zebrafish Prdx4 contains the conserved peroxidatic and resolving cysteines characteristic of 2-Cys peroxiredoxins, enabling formation and reduction of intersubunit disulfide bonds as part of its catalytic cycle. Its ER localization signal supports its integration into secretory-pathway redox networks. The zebrafish prdx4 gene maps to chromosome 20 and is transcriptionally regulated by oxidative stress, metabolic cues, and developmental signaling pathways influencing secretory tissue maturation. Co-localization studies detect Prdx4 within ER-rich regions, hepatic cells, endocrine pancreas, notochord, neural tissues, and immune-associated domains, often overlapping with markers of protein folding pathways, redox enzymes, and stress-response systems.

A Zebrafish Prdx4 antibody is suitable for detecting Prdx4 in studies focused on oxidative stress regulation, ER-associated protein folding, redox homeostasis, liver and pancreas development, and inflammatory or metabolic responses in Danio rerio. Its ER-associated distribution enables researchers to map oxidative environments, analyze redox imbalances in genetic mutants, examine secretory dysfunction, and evaluate environmental or chemical stressors that impact redox-dependent developmental processes. Because peroxiredoxins play broad roles in antioxidant defense and protein maturation, Prdx4 is widely used in zebrafish models of oxidative injury, metabolic regulation, and secretory-pathway biology. 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 Prdx4 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Prdx4 recombinant protein (amino acids S167-N260) was used as the immunogen for the Zebrafish Prdx4 antibody.

Storage

After reconstitution, the Zebrafish Prdx4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.