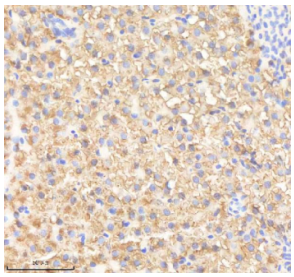
Zebrafish Prdx4 Antibody / Peroxiredoxin 4 (RZ1279)

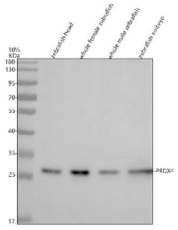
Catalog No.	Formulation	Size
RZ1279	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

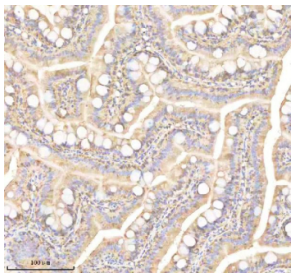
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	A3KP44
Localization	Cytoplasm
Applications	Western Blot : 0.5-1ug/ml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



IHC 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.



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.



IHC 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

Prdx4 (Peroxiredoxin 4) is a member of the peroxiredoxin family of antioxidant enzymes that play a critical role in protecting cells from oxidative stress by reducing hydrogen peroxide and other reactive oxygen species (ROS). It functions as a thiol-specific antioxidant, protecting cellular components from oxidative damage by catalyzing the reduction of peroxides in the cytosol and endoplasmic reticulum (ER). Prdx4 is involved in maintaining cellular redox balance and modulating oxidative stress responses, which are important for cell survival, protein folding, and immune function.

In zebrafish, Prdx4 is an ortholog of the human PRDX4 gene, with both proteins sharing a high degree of sequence conservation in their peroxiredoxin domain, which is essential for their antioxidant activity. This functional conservation suggests that Prdx4 in zebrafish performs similar protective roles as its human counterpart in oxidative stress response and cellular homeostasis. The zebrafish model, therefore, offers an excellent system to study the roles of peroxiredoxins in cell survival, protein quality control, and diseases related to oxidative damage.

Prdx4 in zebrafish also has isoforms, which may be generated through alternative splicing. These isoforms can exhibit tissue-specific expression patterns and may have distinct functions depending on the cellular environment or developmental stage. The existence of isoforms allows for more precise regulation of redox balance in response to physiological stress and disease conditions, including conditions involving chronic inflammation or neurodegenerative disorders.

Zebrafish Prdx4 is expressed in various tissues, including the liver, brain, muscles, and heart, where it plays an essential role in protecting cells from oxidative damage and maintaining cellular integrity. Its expression is especially important in the endoplasmic reticulum, where it participates in the oxidative folding of proteins. Prdx4 also contributes to the regulation of immune responses by modulating inflammatory signaling pathways, making it essential for maintaining immune homeostasis and protecting tissues from inflammatory damage.

Given its role in antioxidant defense, cell survival, and immune regulation, zebrafish Prdx4 is an important protein for studying oxidative stress, neurodegenerative diseases, cardiovascular health, and immune system function. Disruptions in Prdx4 function in zebrafish can lead to increased cellular oxidative damage, impaired protein folding, and inflammatory responses, making it a valuable model for investigating diseases related to oxidative stress and cellular dysfunction.

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.