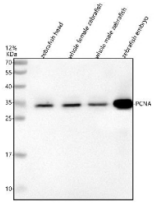
Zebrafish Pcna Antibody / Proliferating cell nuclear antigen (RZ1265)

Catalog No.	Formulation	Size
RZ1265	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	Q9PTP1
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Pcna antibody is available for research use only.



Western blot analysis of Pcna protein using Zebrafish Pcna antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~29 kDa, commonly observed at 29-36 kDa.

Description

The Zebrafish Pcna antibody targets Pcna, also known as Proliferating cell nuclear antigen, a highly conserved nuclear protein essential for DNA replication, repair, chromatin assembly, and cell cycle progression in Danio rerio. Zebrafish, also known as Danio rerio, express pcna robustly in proliferative embryonic tissues, especially during stages of rapid cell division such as gastrulation, neurulation, and early organ formation. Pcna localizes to the nucleus, where it forms a sliding clamp that encircles DNA, enabling high-processivity replication and coordinating the recruitment of enzymes involved in DNA synthesis and repair.

Pcna belongs to the DNA clamp family of replication-associated proteins and serves as a central scaffold for DNA polymerase delta, replication factor C, FEN1, ligases, and chromatin assembly factors. In zebrafish embryos, high pcna expression correlates with proliferative zones such as the developing brain, retina, somites, hematopoietic territories, digestive primordia, and fin buds. A Zebrafish Pcna antibody is suitable for detecting nuclear signals in cells undergoing DNA synthesis, making it one of the most widely used markers for proliferation and tissue growth in developmental studies.

Functionally, Pcna is indispensable for S-phase progression. It stabilizes DNA polymerases, coordinates Okazaki fragment processing, and regulates DNA repair pathways including base excision repair, nucleotide excision repair, and mismatch repair. In zebrafish, Pcna expression patterns reveal spatial dynamics of proliferation during organogenesis, enabling mapping of growth zones and analyzing mutants that alter cell cycle progression. Pcna also plays roles in chromatin remodeling, epigenetic maintenance, and cellular stress responses. Its expression increases during regeneration, making it valuable for studies of fin regrowth, cardiac repair, and tissue renewal after injury.

Structurally, zebrafish Pcna forms a homotrimeric ring that clamps around DNA. Its interdomain connecting loop serves as a docking platform for replication and repair proteins. These interactions regulate DNA synthesis fidelity and orchestrate transitions between replication and repair machinery. Zebrafish pcna maps to chromosome 14, with transcription highly responsive to developmental cues, proliferative demands, and DNA damage. Co-localization studies consistently detect Pcna in nuclei of cells in mid-S phase, frequently overlapping with markers such as Mcm proteins, cyclins, and DNA damage indicators following genotoxic exposure.

A Zebrafish Pcna antibody is suitable for detecting Pcna in studies focused on cell proliferation, DNA replication dynamics, regeneration, tissue growth, mutagenesis, and developmental patterning in Danio rerio. Its sharp nuclear localization allows researchers to quantify proliferating cells, assess growth defects in genetic mutants, evaluate toxicological impacts on the cell cycle, and map developmental expansion of organs across embryonic stages. Because Pcna is a universal marker of cell division with strong conservation across vertebrates, this antibody is a core reagent for developmental biology and regenerative research. The reagent is supplied for research use by NSJ Bioreagents.

Application Notes

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

Immunogen

E. coli-derived zebrafish Pcna recombinant protein (amino acids M1-S260) was used as the immunogen for the Zebrafish Pcna antibody.

Storage

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