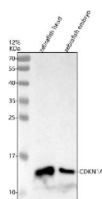


Zebrafish Cdkn1a Antibody / p21 / Waf1 / Cip1 (RZ1258)

| Catalog No. | Formulation | Size |
|-------------|---|--------|
| RZ1258 | 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 | A0A8M1RFS1 |
| Applications | Western Blot : 0.5-1ug/ml |
| Limitations | This Zebrafish Cdkn1a antibody is available for research use only. |



Western blot analysis of Cdkn1a protein using Zebrafish Cdkn1a antibody and 1) zebrafish head tissue lysates and 2) zebrafish embryo tissue lysate. Predicted molecular weight ~15 kDa.

Description

The Zebrafish Cdkn1a antibody targets Cdkn1a, also known as p21, Waf1, or Cip1, a cyclin-dependent kinase inhibitor essential for cell cycle arrest, DNA damage responses, tissue differentiation, and stress-induced developmental regulation in *Danio rerio*. Zebrafish, also known as *Danio rerio*, express cdkn1a as a rapidly inducible regulator that halts cell cycle progression in response to genotoxic stress, metabolic imbalance, or developmental cues. Cdkn1a localizes to the nucleus, where it binds and inhibits cyclin-CDK complexes to enforce G1 and S phase arrest, allowing time for DNA repair, chromatin reorganization, or differentiation events during embryogenesis.

Cdkn1a belongs to the Cip/Kip family of CDK inhibitors, sharing structural features that allow binding to cyclin-CDK

complexes and proliferating cell nuclear antigen (PCNA). In zebrafish embryos, cdkn1a is expressed at low basal levels but becomes strongly upregulated following irradiation, oxidative stress, chemical exposure, or p53 pathway activation. A Zebrafish Cdkn1a antibody is suitable for detecting nuclear and occasionally cytoplasmic expression in cells undergoing stress-induced cell cycle arrest, differentiation transitions, or damage-response signaling.

Functionally, Cdkn1a plays a central role in safeguarding genomic integrity. In response to DNA damage, p53 directly induces cdkn1a transcription, triggering rapid cell cycle blockade and enabling DNA repair pathways to prevent propagation of damaged genetic material. In developing zebrafish tissues, Cdkn1a helps regulate proliferation during organogenesis, including in the brain, retina, hematopoietic system, and somites. It also contributes to stress tolerance, apoptosis modulation, and metabolic adaptation. Because zebrafish embryos provide accessible models for chemical screening and radiation studies, Cdkn1a is widely used as a biomarker for p53 activation, genotoxic stress, and cell cycle checkpoint engagement.

Structurally, zebrafish Cdkn1a contains domains that bind CDK2, CDK4, and cyclins E, A, and D, enabling potent inhibition of kinase-driven cell cycle progression. Cdkn1a also interacts with PCNA, regulating DNA replication and repair. The zebrafish cdkn1a gene maps to chromosome 19, with regulatory elements responsive to p53, oxidative stress pathways, and developmental transcription factors. Co-localization studies detect Cdkn1a in nuclei of cells undergoing stress-induced arrest, differentiation-related slowing of proliferation, or checkpoint activation, often overlapping with markers such as p53, gamma-H2AX, or senescence-related regulators.

A Zebrafish Cdkn1a antibody is suitable for detecting Cdkn1a in studies focused on DNA damage responses, p53 signaling, developmental cell cycle control, toxicological screening, and stress-response pathways in *Danio rerio*. Its nuclear localization provides insight into regions where proliferation is temporally halted for repair, differentiation, or metabolic recalibration. Researchers use Cdkn1a to assess genotoxicity, characterize cell cycle phenotypes in mutants, evaluate developmental consequences of environmental exposures, and study how signaling networks coordinate proliferation with embryo patterning. These attributes make the antibody valuable for developmental biology, toxicology, genome stability research, and cell cycle regulation studies, and this reagent is supplied for research use by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Cdkn1a antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Cdkn1a recombinant protein (amino acids M1-Q170) was used as the immunogen for the Zebrafish Cdkn1a antibody.

Storage

After reconstitution, the Zebrafish Cdkn1a antibody can be stored for up to one month at 4°C. For long-term, aliquot and store at -20°C. Avoid repeated freezing and thawing.