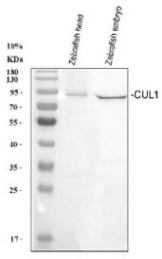
Zebrafish Cul1 Antibody / Cul1a / Cul1b / Cullin 1 (RZ1165)

Catalog No.	Formulation	Size
RZ1165	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	Q6NYS3, Q802D4
Applications	Western blot: 0.5-1 ug/ml
Limitations	This Zebrafish Cul1 antibody is available for research use only.



Zebrafish Cul1 Antibody Head and Embryo Tissue WB. Western blot analysis of Zebrafish Cul1a/b protein using Zebrafish Cul1 antibody with 1) zebrafish head and 2) zebrafish embryo tissue lysate. Predicted molecular weight ~90 kDa.

Description

Zebrafish (Danio rerio) Cul1 antibody detects Cul1, a core scaffold protein of the SCF E3 ubiquitin ligase complex that regulates targeted protein degradation, cell cycle progression, and numerous developmental signaling pathways. In zebrafish, Cul1 is encoded by two paralogs, cul1a and cul1b, each producing functional forms of Cullin 1 that participate in ubiquitin-mediated proteolysis. As a central component of SCF complexes, Cul1 assembles with Skp1, F-box proteins, and the Rbx1 ubiquitin ligase to recruit substrates for ubiquitination. Because protein turnover regulates developmental timing, signal transduction, and tissue morphogenesis, Zebrafish Cul1 antibody reagents support research in cell cycle control, proteostasis, and vertebrate developmental biology.

Cul1 serves as the structural backbone of the SCF complex. Its elongated cullin domain positions substrate-recognition F-box proteins on one end and the Rbx1-associated E2 enzyme on the other, enabling efficient ubiquitin transfer to targeted proteins. In zebrafish embryos, Cul1a and Cul1b are broadly expressed in proliferating tissues such as the neural tube, somites, heart, and endodermal organs. These regions require rapid and precisely regulated protein turnover to coordinate cell cycle transitions, patterning cues, and tissue organization.

The SCF complex regulates a wide range of substrates involved in cell cycle entry, DNA replication, transcription, and developmental signaling. For example, SCF-mediated degradation controls cyclins, CDK inhibitors, and transcriptional repressors, ensuring correct progression through G1, S, and G2 phases. In zebrafish, perturbation of Cul1 function disrupts proliferation rates, causes defects in axis formation, and alters organogenesis due to misregulated protein stability.

Beyond cell cycle control, Cul1 influences key developmental pathways such as Wnt, Hedgehog, and TGF-beta signaling. SCF complexes containing specific F-box proteins target pathway regulators for ubiquitination, modulating signal amplitude and duration. Zebrafish studies demonstrate that altering ubiquitin-dependent signaling affects processes including somitogenesis, brain development, and craniofacial formation. Because Cul1 orchestrates these regulatory events by assembling diverse SCF complexes, it plays a foundational role in vertebrate patterning.

At the molecular level, Cullin 1 undergoes NEDD8 conjugation, a modification that enhances SCF activity by promoting conformational changes needed for efficient ubiquitin transfer. Deneddylation cycles regulate SCF activation and turnover, adding another layer of control to Cul1-mediated proteolysis. Zebrafish Cul1a and Cul1b preserve these biochemical features, supporting conserved mechanisms of protein quality control and developmental timing.

Subcellular localization of Cul1 is predominantly cytoplasmic and nuclear, reflecting SCF activity across multiple compartments. Its paralogs may show nuanced spatial or temporal expression differences, enabling tissue-specific regulation of protein degradation. This flexibility is critical during zebrafish embryogenesis, when proliferative zones and differentiating tissues require distinct ubiquitin-dependent regulatory programs.

A Zebrafish Cul1 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining ubiquitin-mediated proteolysis, cell cycle dynamics, developmental signaling, and proteostasis. This antibody targets Cul1a and Cul1b for studies involving SCF complex function, substrate regulation, and vertebrate developmental control. NSJ Bioreagents provides the Zebrafish Cul1 antibody to support research in protein turnover and developmental physiology.

This Zebrafish antibody is part of a broader Zebrafish / Danio rerio antibody panel offered by NSJ Bioreagents.

Application Notes

Optimal dilution of the Zebrafish Cul1 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Cul1a/b recombinant protein (amino acids K436-A777) was used as the immunogen for the Zebrafish Cul1 antibody. This antibody will detect the a and b isoforms of Cul1.

Storage

After reconstitution, the Zebrafish Cul1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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