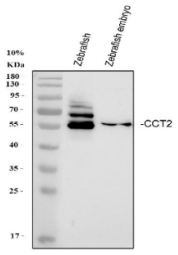
Zebrafish Cct2 Antibody / TCP1 beta / T-complex protein 1 subunit beta (RZ1030)

Catalog No.	Formulation	Size
RZ1030	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	Q6PBW6
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish Cct2 antibody is available for research use only.



Western blot analysis of Zebrafish Cct2 protein using Zebrafish Cct2 antibody and 1) whole zebrafish and 2) zebrafish embryo lysate. Predicted molecular weight ~58 kDa.

Description

Zebrafish Cct2 antibody recognizes Tcp1 beta, a core subunit of the cytosolic chaperonin-containing TCP1 (CCT) complex, encoded by the zebrafish cct2 gene on chromosome 2. Cct2 is one of the eight essential subunits of the CCT chaperonin, which forms a double-ring structure that mediates ATP-dependent folding of actin, tubulin, and numerous additional cytoskeletal and regulatory proteins. In Danio rerio, Cct2 is expressed early during embryogenesis and is enriched in proliferative tissues such as the neural tube, brain, somites, notochord, developing musculature, and rapidly dividing endodermal organs. Subcellular localization is cytosolic, consistent with its function in protein folding and interaction with cytoskeletal substrates.

Tcp1 beta participates in the correct folding of essential cytoskeletal proteins that guide cell shape, polarity, division, and intracellular transport. Zebrafish development requires extensive cytoskeletal remodeling during gastrulation, neurulation, somite formation, and organogenesis, making Cct2 activity vital for tissue architecture and morphogenesis. By supporting tubulin and actin folding, Cct2 influences microtubule dynamics, spindle assembly, muscle fiber organization, and neural circuit formation. The CCT complex additionally assists in folding signaling proteins, transcriptional regulators, and cell cycle factors, linking Cct2 to broader regulatory networks essential for embryonic growth.

Developmental studies indicate that perturbations in CCT complex function can cause widespread abnormalities in tissue patterning, neural development, and morphogenetic movements. Reduced Cct2 activity disrupts microtubule and actin integrity, impairing cell migration, convergent extension movements, and somite boundary formation. Neural tissues are particularly sensitive to altered Cct2 levels because neuronal differentiation and axon extension rely on properly folded cytoskeletal structures and efficient intracellular transport. In muscle precursors, Cct2 supports the assembly of contractile components and mitochondrial organization required for myogenesis.

Tcp1 beta also contributes to cellular stress responses. Under proteotoxic or metabolic stress, Cct2 and the broader CCT complex help maintain proteostasis by refolding misfolded proteins and preventing aggregation. These functions are relevant in zebrafish embryos, which experience large-scale protein turnover during rapid development. Cct2 may additionally influence pathways involved in autophagy, mitochondrial dynamics, and cell survival. Because many CCT substrates participate in signaling pathways such as Wnt, Hedgehog, and FGF, Cct2 indirectly modulates developmental signaling fidelity and gene expression patterns.

At the molecular level, Cct2 works in concert with the other seven CCT subunits to form a coordinated ATP-driven folding chamber. The CCT complex recognizes a broad array of substrates through surface-exposed domains and facilitates folding via conformational cycling. Tcp1 beta contributes to substrate specificity and structural stability within the ring complex. Isoform variation or differential expression of cct2 may reflect tissue-specific folding requirements during zebrafish development. Because protein-folding defects underlie many vertebrate developmental disorders, zebrafish Cct2 models help illuminate conserved mechanisms that link proteostasis to embryonic morphogenesis.

This Zebrafish Cct2 antibody is suitable for detecting Tcp1 beta in research focused on cytoskeletal protein folding, proteostasis, neural development, muscle formation, cell division, and early embryonic patterning in zebrafish. It supports studies examining CCT complex function, actin and tubulin maturation, and developmental phenotypes resulting from disrupted chaperonin activity. NSJ Bioreagents provides this reagent within its zebrafish and protein-folding biology antibody portfolio.

Application Notes

Optimal dilution of the Zebrafish Cct2 antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish Cct2 recombinant protein (amino acids E437-C535) was used as the immunogen for the Zebrafish Cct2 antibody.

Storage

After reconstitution, the Zebrafish Cct2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.