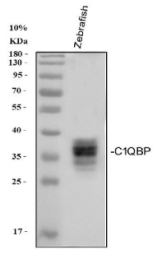
Zebrafish C1qbp Antibody / Complement component 1 Q subcomponent-binding protein (RZ1086)

Catalog No.	Formulation	Size
RZ1086	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	F1R3F7
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish C1qbp antibody is available for research use only.



Western blot analysis of Zebrafish C1qbp protein using Zebrafish C1qbp antibody and whole zebrafish tissue lysate. Predicted molecular weight ~30 kDa.

Description

Zebrafish (Danio rerio) C1qbp antibody recognizes Complement component 1 Q subcomponent binding protein, a multifunctional mitochondrial and cytoplasmic protein involved in metabolism, RNA processing, immune signaling, and apoptotic regulation. In zebrafish, C1qbp is encoded by the c1qbp gene and is structurally conserved with its mammalian orthologs, which contain a pentatricopeptide repeat like fold enabling interactions with mitochondrial ribosomes and regulatory RNAs. Although originally described as a binding partner for complement C1q, the protein is now understood to play broad roles in mitochondrial biogenesis, oxidative phosphorylation, and cellular stress responses. These diverse

functions make Complement component 1 Q subcomponent-binding protein antibody reagents valuable tools for developmental and metabolic research.

Functionally, C1qbp is predominantly localized to the mitochondrial matrix, where it participates in the assembly and stability of mitochondrial ribosomes, thereby supporting efficient translation of oxidative phosphorylation components. Its depletion in vertebrate systems leads to impaired respiratory chain activity and metabolic imbalance, underscoring its essential role in energy production. Beyond its mitochondrial functions, C1qbp also appears in the cytosol and nucleus, where it contributes to RNA metabolism, splicing regulation, and modulation of inflammatory signaling pathways. These combined activities position C1qbp as a central node linking metabolism, gene expression, and cellular homeostasis.

During zebrafish development, c1qbp transcripts are detected broadly across early embryonic stages, with enriched expression in metabolically active tissues such as the heart, brain, and skeletal musculature. This pattern reflects the elevated mitochondrial demands of rapidly differentiating cell populations. In cardiac tissue, C1qbp supports ATP production required for contractility, while in neuronal tissues it contributes to synaptic function and mitochondrial distribution. Its conserved roles across vertebrates make zebrafish an advantageous system for studying mitochondrial biology and stress response mechanisms involving C1qbp.

C1qbp also intersects with immune signaling pathways. In mammalian systems, it modulates complement activation and influences inflammatory cytokine responses. Although zebrafish specific immune functions of C1qbp are still emerging, conservation of sequence and structural motifs suggests similar regulatory potential. Developmental studies indicate that C1qbp may participate in early innate immune responses and stress induced signaling pathways that shape tissue resilience. Additionally, the protein has been implicated in apoptosis regulation, acting in part through mitochondrial permeability and cytochrome c binding.

Because of its involvement in mitochondrial function, C1qbp interacts with partners that include mitochondrial ribosomal proteins, chaperones, and enzymes involved in respiratory chain assembly. Dysregulation of these interactions can lead to defects in energy balance, which in turn influence organogenesis, muscle formation, and neuronal differentiation. Zebrafish models provide opportunities to examine these processes in vivo, particularly through visualization of mitochondrial morphology and metabolic activity during embryogenesis.

The Zebrafish C1qbp antibody is suitable for research applications such as western blotting, immunohistochemistry, and related assays for mapping C1qbp expression across tissues and developmental stages. This reagent is described solely as detecting endogenous C1qbp, without implying any epitope characterization or external experimental validation. NSJ Bioreagents provides the Zebrafish C1qbp antibody for studies of mitochondrial biology, developmental metabolism, immune regulation, and cellular stress pathways in vertebrate models.

Application Notes

Optimal dilution of the Zebrafish C1qbp antibody should be determined by the researcher.

Immunogen

An E.coli-derived zebrafish C1qbp recombinant protein (amino acids N215-K270) was used as the immunogen for the Zebrafish C1qbp antibody.

Storage

After reconstitution, the Zebrafish C1qbp antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.