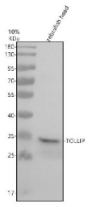
Zebrafish Tollip Antibody / Toll-Interacting Protein (RZ1057)

Catalog No.	Formulation	Size
RZ1057	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	Q7ZV43
Applications	Western Blot : 0.5-1 ug/ml
Limitations	This Zebrafish Tollip antibody is available for research use only.



Western blot analysis of Tollip protein using Tollip antibody and zebrafish head tissue lysate. The predicted molecular weight of Tollip is 30 kDa.

Description

Zebrafish (Danio rerio) Tollip antibody recognizes Toll-interacting protein, encoded by the zebrafish tollip gene. Tollip is a conserved adaptor protein that regulates Toll-like receptor signaling, endosomal sorting, and ubiquitin-dependent trafficking events. In Danio rerio embryos, Tollip is expressed broadly during early development and shows enriched localization in neural tissues, somites, heart, vasculature, pronephric kidney, phagocytic lineages, and endoderm-derived organs such as liver and intestine. Subcellular localization includes cytoplasm, endosomes, and membrane-associated compartments, reflecting its role in coordinating innate immune signaling and vesicle-mediated regulatory processes.

Toll-interacting protein serves as a negative modulator of Toll-like receptor pathways, particularly TLR2 and TLR4, by

binding receptor complexes and associated signaling intermediates. Through these interactions, Tollip helps attenuate inflammatory signaling, limit activation of NF-kappaB pathways, and maintain appropriate thresholds of immune responsiveness. In zebrafish embryos, which rely on innate immunity as their primary early defense system, Tollip provides essential regulation to prevent excessive inflammation that could disrupt morphogenesis or impair tissue differentiation. Tollip-mediated tuning of immune pathways also contributes to proper cellular stress responses and redox balance.

Beyond immune function, Tollip participates in endosomal and ubiquitin-dependent trafficking pathways central to embryonic development. Tollip binds ubiquitinated cargo and sorting machinery, contributing to receptor recycling, lysosomal targeting, and selective protein degradation. These trafficking roles influence signaling pathways that shape cell migration, tissue patterning, and developmental timing. Because zebrafish embryos undergo rapid changes in membrane composition and receptor turnover, Tollip is important for maintaining balanced signaling dynamics in neural, mesodermal, and endodermal tissues.

Neural development in particular benefits from Tollip-associated regulatory mechanisms. Neural progenitors and differentiating neurons require precise control of receptor signaling and vesicle transport to support axon guidance, synaptic assembly, and regional identity. Tollip influences these pathways by modulating endosomal sorting and attenuating kinase cascades that respond to environmental and cellular cues. In the developing brain and spinal cord, Tollip activity contributes to maintaining homeostasis during periods of rapid structural and metabolic change.

Cardiac and vascular tissues also rely on Tollip-mediated regulation. Toll-like receptor signals influence cardiomyocyte proliferation, cardiac tube formation, and angiogenesis. Tollip tempers these pathways, helping ensure proper morphogenetic progression. Additionally, Tollip-associated trafficking pathways support endothelial polarity, extracellular matrix interactions, and barrier formation. Disruption of tollip expression in vertebrate models has been associated with aberrant cardiovascular development and impaired vascular stability.

In endoderm-derived organs, Tollip contributes to metabolic and immunoregulatory signaling. The liver and intestine, which develop early functional roles in detoxification and immune interaction, require Tollip for proper handling of stress-induced pathways and receptor turnover. Tollip also participates in autophagy-related regulation, linking innate immune components with degradation pathways that help maintain proteostasis during organogenesis.

This Zebrafish Tollip antibody is suitable for detecting Toll-interacting protein in research focused on innate immune signaling, endosomal trafficking, neural development, cardiovascular morphogenesis, and metabolic tissue maturation in zebrafish. NSJ Bioreagents provides this reagent within its zebrafish and signaling-regulation antibody catalog.

Application Notes

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

Immunogen

An E.coli-derived zebrafish Tollip recombinant protein (amino acids M1-L276) was used as the immunogen for the Zebrafish Tollip antibody.

Storage

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