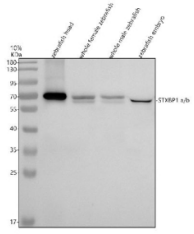
# Zebrafish Stxbp1 Antibody / Stxbp1a / Stxbp1b (RZ1124)

| Catalog No. | Formulation | Size |
|---|---|---|
| RZ1124 | 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** | A0A0R4IQM9, A2BGE0 |
| **RRID** | AB_3756610 |
| **Applications** | Western blot: 0.5-1 ug/ml |
| **Limitations** | This Zebrafish Stxbp1 antibody is available for research use only. |



Zebrafish Stxbp1 Antibody WB. Western blot analysis of Stxbp1a/b protein using Zebrafish Stxbp1 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~69 kDa.

## Description

Zebrafish (Danio rerio) Stxbp1 antibody detects Stxbp1, a highly conserved protein that plays an essential role in synaptic vesicle exocytosis, neurotransmitter release, and neuronal communication. In zebrafish, the stxbp1 gene is represented by two paralogs, stxbp1a and stxbp1b, both encoding proteins homologous to vertebrate STXBP1 (also known as Munc18-1), a core component of the membrane fusion machinery. Stxbp1 proteins regulate the assembly and function of the SNARE complex, which drives synaptic vesicle docking and fusion at presynaptic terminals. Because synaptic

transmission is fundamental to neural circuit formation and function, Zebrafish Stxbp1 antibody reagents are widely used in neurobiology, developmental neuroscience, and synaptic physiology research.

Stxbp1a and Stxbp1b contribute to synaptic maturation and neurotransmission through tightly regulated interactions with syntaxin proteins. By stabilizing syntaxin in a closed conformation, Stxbp1 influences SNARE complex assembly kinetics and ensures proper vesicle fusion timing. In zebrafish embryos, expression of stxbp1a and stxbp1b is strong in developing neural tissues, including the brain, retina, hindbrain motor circuits, and spinal cord interneurons. These patterns reflect the requirement for Stxbp1 function in early neuronal excitability, circuit connectivity, and behavioral responsiveness.

In vertebrates, STXBP1 is essential for synaptic vesicle priming and has been implicated in a variety of neurological phenotypes when disrupted. Zebrafish models demonstrate similar sensitivity to stxbp1 perturbation, including defects in locomotor activity, impaired neuronal firing, and synaptic transmission abnormalities. These studies highlight the conserved role of Stxbp1 proteins in regulating presynaptic release machinery and maintaining the balance between excitation and inhibition during network development.

At the molecular level, Stxbp1 interacts with syntaxin family members, synaptobrevin, and SNAP-25, forming a regulatory framework that controls SNARE-mediated membrane fusion. It also participates in vesicle cycling, endocytosis, and presynaptic organization. Differences between stxbp1a and stxbp1b expression domains may contribute to functional specialization across neuronal subtypes, although both paralogs retain core presynaptic regulatory capabilities. In zebrafish, functional studies indicate that these proteins influence motor coordination, sensory processing, and early behavioral patterns by enabling reliable synaptic output.

Subcellular localization of Stxbp1 is predominantly presynaptic, enriched near active zones where vesicle docking and fusion occur. Its distribution depends on neuronal activity and syntaxin availability, reflecting dynamic remodeling of synaptic protein networks. Stxbp1 forms part of a larger exocytotic machinery that includes Munc13, RIM proteins, and calcium sensors, all of which coordinate vesicle release probability and synaptic strength during development.

A Zebrafish Stxbp1 antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining synaptic vesicle release, presynaptic organization, and neural circuit development. This antibody targets Stxbp1 for studies exploring neurotransmission, neuronal maturation, and vertebrate neurodevelopment. NSJ Bioreagents provides the Zebrafish Stxbp1 antibody to support research in synaptic physiology and developmental neuroscience.

earn more about the role of MUNC18-1 in synaptic vesicle exocytosis and neurotransmitter release on our MUNC18-1 Antibody / Synaptic Vesicle Exocytosis Protein Antibody page.

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

## Application Notes

Optimal dilution of the Zebrafish Stxbp1 antibody should be determined by the researcher.

## Immunogen

An E.coli-derived zebrafish Stxbp1 recombinant protein (amino acids K184-R227) was used as the immunogen for the Zebrafish Stxbp1 antibody. This antibody will detect the a and b isoforms.

## Storage

After reconstitution, the Zebrafish Stxbp1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Copyright © NSJ Bioreagents. All rights reserved.