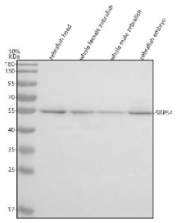
Zebrafish Srp54 Antibody / Signal recognition particle 54 kDa protein (RZ1316)

Catalog No.	Formulation	Size
RZ1316	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	Q7ZVN5
Applications	Western Blot : 0.5-1ug/ml
Limitations	This Zebrafish Srp54 antibody is available for research use only.



Western blot analysis of Srp54 protein using Zebrafish Srp54 antibody and 1) zebrafish head, 2) whole female zebrafish, 3) whole male zebrafish and 4) zebrafish embryo tissue lysate. Predicted molecular weight ~56 kDa.

Description

Zebrafish Srp54 antibody targets Signal recognition particle 54 kDa protein (Srp54), an essential component of the signal recognition particle that mediates co-translational targeting of nascent polypeptides to the endoplasmic reticulum membrane. In zebrafish, also known as Danio rerio, Srp54 binds emerging signal peptides on ribosome-associated polypeptide chains and directs the ribosome-nascent chain complex to the ER via interaction with the SRP receptor. Srp54 localizes primarily to the cytoplasm where it associates transiently with ribosomes, and functionally interfaces with the endoplasmic reticulum during protein targeting events. It is a conserved member of the SRP54 family and plays a fundamental role in secretory and membrane protein biogenesis.

Srp54 contains a GTPase domain and a methionine-rich domain that together enable signal sequence recognition and regulated interaction with SRP receptor components. This GTP-dependent cycle ensures accurate delivery of proteins destined for secretion, membrane insertion, or residence within the endomembrane system. In zebrafish embryos, Srp54 expression is detected early in development, consistent with the high demand for protein synthesis and trafficking during rapid cell division and tissue differentiation. A Zebrafish Srp54 antibody supports studies examining protein targeting and translational control in Danio rerio.

Zebrafish serves as a powerful model for investigating conserved cellular processes such as protein trafficking due to its genetic conservation and developmental accessibility. Disruption of SRP pathway components, including Srp54, has been associated with defects in protein secretion, cellular stress responses, and impaired development. These observations underscore the essential nature of Srp54-mediated targeting for maintaining cellular homeostasis and secretory pathway integrity. A Zebrafish Srp54 antibody enables analysis of Srp54 expression patterns and regulation across developmental stages and experimental conditions.

From a biological relevance perspective, SRP54 is highly conserved across eukaryotes and has been studied extensively in mammalian systems for its role in secretory pathway disorders and protein mislocalization syndromes. Zebrafish Srp54 provides a comparative system for exploring how disruptions in co-translational targeting affect cell physiology, tissue development, and stress signaling. Srp54 activity also intersects with unfolded protein response pathways, linking protein targeting efficiency with ER homeostasis and quality control mechanisms.

At the molecular level, zebrafish Srp54 is encoded by the srp54 gene and produces a protein of approximately 504 amino acids, consistent with vertebrate SRP54 proteins. The protein undergoes conformational changes driven by GTP binding and hydrolysis that regulate its interactions with signal peptides, ribosomes, and SRP receptor subunits. Regulation of Srp54 expression and function is tightly coupled to translational demand and cellular growth state. A Zebrafish Srp54 antibody supports research applications focused on protein targeting, secretory pathway biology, and translational regulation in zebrafish, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

Optimal dilution of the Zebrafish Srp54 antibody should be determined by the researcher.

Immunogen

E. coli-derived zebrafish Srp54 recombinant protein (amino acids M1-K433) was used as the immunogen for the Zebrafish Srp54 antibody.

Storage

After reconstitution, the Zebrafish Srp54 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.