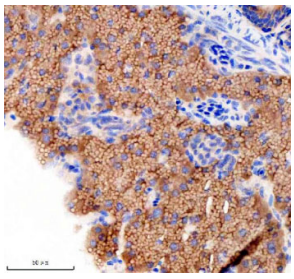
Zebrafish Gnsa Antibody / N-acetylglucosamine-6-sulfatase (RZ1161)

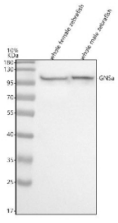
Catalog No.	Formulation	Size
RZ1161	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

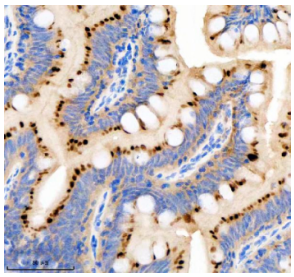
Availability	2-3 weeks
Species Reactivity	Zebrafish
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity chromatography
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q4V902
Applications	Western Blot : 0.5-1 ug/ml Immunohistochemistry (FFPE) : 2-5 ug/ml
Limitations	This Zebrafish Gnsa antibody is available for research use only.



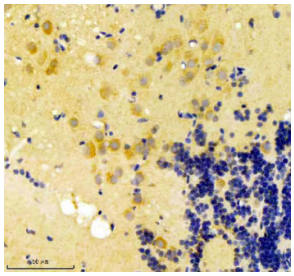
Zebrafish Gnsa Antibody Pancreas Tissue IHC. Immunohistochemistry staining of FFPE zebrafish pancreas tissue with Zebrafish Gnsa antibody, HRP secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Gnsa Antibody Whole Danio rerio Tissue WB. Western blot analysis of Gnsa protein using Gnsa antibody and 1) whole female zebrafish and 2) whole male zebrafish tissue lysate. Predicted molecular weight ~61 kDa.



Zebrafish Gnsa Antibody Colon Tissue IHC. Immunohistochemistry staining of FFPE zebrafish colon tissue with Zebrafish Gnsa antibody, HRP secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Zebrafish Gnsa Antibody Brain Tissue IHC. Immunohistochemistry staining of FFPE zebrafish brain tissue with Zebrafish Gnsa antibody, HRP secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Zebrafish (Danio rerio) Gnsa antibody detects Gnsa, a lysosomal enzyme responsible for the hydrolysis of 6-sulfated N-acetylglucosamine residues within glycosaminoglycans (GAGs). Encoded by the gnsa gene in zebrafish, N-acetylglucosamine-6-sulfatase participates in the stepwise degradation of heparan sulfate and keratan sulfate, two major sulfated polysaccharides found in the extracellular matrix and on cell surfaces. These degradation pathways are essential for tissue organization, signal modulation, and cellular turnover. Because proper GAG breakdown supports developmental morphogenesis and lysosomal homeostasis, Zebrafish Gnsa antibody reagents support research in lysosomal biology, extracellular matrix remodeling, and metabolic regulation during vertebrate development.

Gnsa belongs to the sulfatase enzyme family, which removes sulfate groups from a variety of substrates including steroids, glycolipids, and glycoproteins. In the case of N-acetylglucosamine-6-sulfatase, its primary role is to prepare glycosaminoglycans for further degradation by downstream lysosomal hydrolases. In zebrafish embryos, gnsa is expressed in tissues requiring active extracellular matrix turnover, such as the developing cartilage, notochord, brain, eye, and craniofacial structures. These regions depend on precise GAG remodeling for structural integrity, signaling gradients, and coordinated tissue patterning.

Within the lysosome, GAG degradation contributes to recycling of sugar residues and sulfates while preventing the accumulation of partially processed polysaccharides. When sulfatase activity is impaired, intermediate GAG fragments can accumulate, leading to lysosomal storage abnormalities. In mammals, deficiencies in N-acetylglucosamine-6-sulfatase cause mucopolysaccharidosis type IIID (Sanfilippo D syndrome), characterized by neurological decline and connective tissue defects. Zebrafish models provide an opportunity to study conserved aspects of sulfatase biology, substrate processing, and the developmental effects of lysosomal impairment.

N-acetylglucosamine-6-sulfatase also influences signaling pathways. Sulfated glycosaminoglycans modulate interactions with growth factors, chemokines, and morphogens, including FGF, Wnt, Hedgehog, and BMP family members. By regulating GAG sulfation state, Gnsa indirectly shapes the distribution and activity of these signaling molecules. In zebrafish, these pathways are central to processes such as neural crest migration, somite patterning, cartilage differentiation, and organogenesis. Thus, Gnsa contributes not only to matrix turnover but also to the regulation of developmental signaling networks.

At the biochemical level, Gnsa is synthesized as a precursor protein that undergoes lysosomal targeting and post-translational processing to form an active enzyme. Like other sulfatases, it contains conserved catalytic residues that depend on the unique formylglycine-generating enzyme pathway, which converts a cysteine or serine residue into formylglycine within the active site. Subcellular localization is predominantly within lysosomes, where Gnsa functions

alongside complementary hydrolases in GAG processing.

Zebrafish provide a tractable system for visualizing lysosomal dynamics and extracellular matrix turnover in vivo. Perturbing gnsa expression can result in altered tissue morphology, developmental delay, or metabolic imbalance due to disrupted GAG degradation. These phenotypic consequences make Gnsa a meaningful target for studying lysosomal storage pathways and matrix-associated developmental processes.

A Zebrafish Gnsa antibody is suitable for research applications such as western blotting, immunohistochemistry, and assays examining lysosomal function, GAG metabolism, extracellular matrix remodeling, and developmental signaling. This antibody targets N-acetylglucosamine-6-sulfatase for studies involving lysosomal degradation pathways and vertebrate morphogenesis. NSJ Bioreagents provides the Zebrafish Gnsa antibody to support research in lysosomal biology and developmental matrix regulation.

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

Application Notes

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

Immunogen

An E.coli-derived zebrafish Gnsa recombinant protein (amino acids W224-R341) was used as the immunogen for the Zebrafish Gnsa antibody.

Storage

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