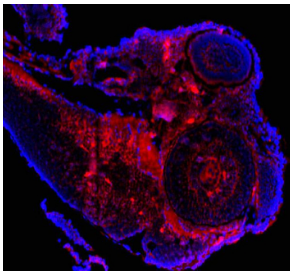
Zebrafish Cask Antibody / Caska (RZ1036)

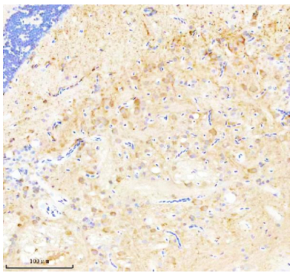
Catalog No.	Formulation	Size
RZ1036	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

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	Q910A4
Applications	Immunohistochemistry (FFPE) : 2-5 ug/ml Immunofluorescence : 5 ug/ml
Limitations	This Zebrafish Cask antibody is available for research use only.



Immunofluorescent analysis of Cask protein using Zebrafish Cask antibody (red) and DAPI nuclear stain (blue) with zebrafish embryo tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing



Immunohistochemical analysis of Cask protein using Zebrafish Cask antibody and paraffin-embedded zebrafish brain tissue. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Zebrafish (Danio rerio) Cask antibody recognizes Caska, a conserved scaffolding protein encoded by the zebrafish cask gene located on chromosome 2. Cask belongs to the membrane-associated guanylate kinase (MAGUK) family and features multiple interaction domains, including CaMK-like, PDZ, SH3, and guanylate kinase-like regions. These modular domains allow Cask to assemble large protein complexes at synapses, cell junctions, and polarized membrane regions. In Danio rerio, Caska is expressed from early embryogenesis and is enriched in the developing nervous system, including the brain, spinal cord, retinal ganglion cells, hindbrain nuclei, and peripheral sensory neurons. Subcellular localization is primarily synaptic and cytoplasmic, with additional presence at cell junctions and polarized epithelial surfaces depending on developmental stage.

Caska plays a vital role in neuronal development by organizing signaling complexes that regulate synapse formation, axonal targeting, and neurotransmission. Through its PDZ domain, Cask interacts with neurexins, syndecans, and additional synaptic adhesion molecules, helping connect extracellular cues to intracellular signaling machinery. In zebrafish embryos, these interactions contribute to neural circuit assembly, dendritic arborization, and stabilization of early synaptic contacts. Cask also influences axonal growth cone behavior by coordinating cytoskeletal elements and membrane-associated signaling proteins.

During early brain development, Caska supports processes such as neurite extension, synaptic specialization, and the maturation of excitatory and inhibitory circuits. Loss-of-function studies in vertebrate systems demonstrate that reduced Cask activity impairs synaptic vesicle organization, disrupts neurotransmission, and alters neuronal migration. Zebrafish models reflect similar vulnerabilities, showing defects in brain regionalization, retinal axon projection, and spinal motor neuron patterning when cask function is compromised. Because synaptic connection patterns guide behavioral circuit formation, Caska is central to establishing functional neural networks during development.

Cask also plays roles outside the nervous system. In zebrafish epithelial tissues, Caska participates in cell polarity regulation and junctional assembly. Its modular domains allow interaction with polarity regulators, cytoskeletal adaptors, and membrane-associated kinases, influencing tissue integrity and coordinated morphogenesis. Caska may also regulate transcription through nuclear shuttling events conserved across vertebrates, where it partners with transcription factors to influence gene expression programs involved in growth and differentiation.

In disease-relevant contexts, human CASK mutations cause neurodevelopmental disorders characterized by intellectual disability, microcephaly, ataxia, and disrupted synaptic organization. Zebrafish provide a valuable platform for modeling these conditions, as cask-deficient embryos display neurological and behavioral abnormalities that parallel aspects of human pathology. These models allow investigation of conserved mechanisms linking synaptic scaffolding, neural connectivity, and developmental signaling.

At the molecular level, Caska forms multiprotein complexes that coordinate membrane signaling, cytoskeletal organization, and synaptic vesicle dynamics. Isoform diversity or differential regulatory control in zebrafish may fine-tune Caska activity across neural and epithelial tissues during development. Because Cask interacts with neurexin family members, calcium-dependent kinases, and polarity determinants, it acts as an integrative scaffold supporting multiple developmental pathways.

This Zebrafish Cask antibody is suitable for detecting Caska in research focused on synapse formation, neural development, cell polarity, axon guidance, and developmental signaling in zebrafish. It supports studies examining synaptic scaffolding, MAGUK complex assembly, cytoskeletal regulation, and phenotypes linked to altered neuronal connectivity. NSJ Bioreagents provides this reagent within its zebrafish and neurodevelopment-focused antibody portfolio.

Application Notes

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

Immunogen

An E.coli-derived zebrafish Cask recombinant protein (amino acids R27-D492) was used as the immunogen for the Zebrafish Cask antibody.

Storage

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