abcam

ab6084

Anti-Gemin 2 antibody [2E17]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.1% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human GEMIN2 aa 1 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link O14893
Clone number	2E17
Purification technique	Affinity purification Protein A
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from supernatant.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells

Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Target data

See full target information GEMIN2

Function	The SMN complex catalyzes the assembly of small nuclear ribonucleoproteins (snRNPs), the building blocks of the spliceosome, and thereby plays an important role in the splicing of cellular pre-mRNAs (PubMed:18984161, PubMed:9323129). Most spliceosomal snRNPs contain a common set of Sm proteins SNRPB, SNRPD1, SNRPD2, SNRPD3, SNRPE, SNRPF and SNRPG that assemble in a heptameric protein ring on the Sm site of the small nuclear RNA to form the core snRNP (Sm core) (PubMed:18984161). In the cytosol, the Sm proteins SNRPD1, SNRPD2, SNRPE, SNRPF and SNRPG (5Sm) are trapped in an inactive 6S pICln-Sm complex by the chaperone CLNS1A that controls the assembly of the core snRNP (PubMed:18984161). To assemble core snRNPs, the SMN complex accepts the trapped 5Sm proteins from CLNS1A (PubMed:18984161, PubMed:9323129). Binding of snRNA inside 5Sm ultimately triggers eviction of the SMN complex, thereby allowing binding of SNRPD3 and SNRPB to complete assembly of the core snRNP (PubMed:31799625). Within the SMN complex, GEMIN2 constrains the conformation of 5Sm, thereby promoting 5Sm binding to snRNA containing the snRNP code (a nonameric Sm site and a 3'-adjacent stem-loop), thus preventing progression of assembly until a cognate substrate is bound (PubMed:16314521, PubMed:21816274, PubMed:31799625).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Involved in biogenesis of spliceosomal snRNPs, forms complex with Survival of Motor Neurons (SMN) protein, interacts tightly with spliceosomal proteins and spliceosomal snRNAs U1 and U5.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Gemin 2 also known simply as "gemin" is a protein identified by its mass of approximately 29 kDa. The protein is an essential component in the survival of motor neuron (SMN) complex. Gemin 2 localizes mainly in the cytoplasm and is expressed in a variety of tissues throughout the body with a notable presence in motor neurons. This protein works closely within a multi-protein assembly regulating several functions related to the synthesis and processing of RNA.
Biological function summary	Gemin 2 plays a role in the assembly of small nuclear ribonucleoproteins (snRNPs) which are integral to pre-mRNA splicing. As part of the SMN complex Gemin 2 ensures the proper assembly and delivery of snRNPs to the spliceosome. This activity is necessary for accurate splicing of pre-mRNA which is a critical step in gene expression. The protein's binding and interaction capabilities stabilize this complex contributing to efficient splicing processes.
Pathways	Gemin 2 is integral to RNA processing mechanisms and the RNP biogenesis pathway. It associates with other proteins like Gemin 6 and Gemin 7 within the SMN complex to promote snRNP biogenesis and function. Additionally Gemin 2 contributes to pathways that oversee proper mRNA processing and stability ensuring that gene expression is accurately regulated in the cell.
Associated diseases and disorders	Mutations or dysfunctions in the Gemin 2 protein are linked with spinal muscular atrophy (SMA) a neurodegenerative disorder affecting motor neurons. In SMA the SMN complex including Gemin 2 is disrupted leading to deficits in snRNP assembly and widespread splicing defects. Also disruptions in this protein may have connections to muscular dystrophies where imbalances in splicing can cause muscle weakness and atrophy. Gemin 2's interplay with the SMN protein is particularly significant in these disorders as their interaction is critical for maintaining motor neuron function and viability.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

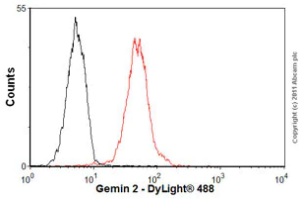
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1 product image



Flow Cytometry - Anti-Gemin 2 antibody [2E17] (ab6084)

Gemin 2 Flow Cytometry staining using mouse Anti-Gemin 2 antibody

Overlay histogram showing HeLa cells stained with ab6084 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab6084, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.

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