abcam

ab201691

Anti-Gemin 5 antibody [EPR17841]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR17841
Purification technique	Affinity purification Protein A
Concentration	1.143 - 1.212 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/70
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/600
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/250
Notes	-

Target data

See full target information Gem-associated protein 5

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:16857593, PubMed:18984161, PubMed:20513430, PubMed:33963192). 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). In the cytosol, the Sm proteins SNRPD1, SNRPD2, SNRPE, SNRPF and SNRPG 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 forming an intermediate (PubMed:18984161). 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. Within the SMN complex, GEMIN5 recognizes and delivers the small nuclear RNAs (snRNAs) to the SMN complex (PubMed:11714716, PubMed:16314521, PubMed:16857593, PubMed:19377484, PubMed:19750007,

PubMed:20513430, PubMed:27834343, PubMed:27881600, PubMed:27881601). Binds to the 7-methylguanosine cap of RNA molecules (PubMed:19750007, PubMed:27834343, PubMed:27881600, PubMed:27881601, Ref.27). Binds to the 3'-UTR of SMN1 mRNA and regulates its translation; does not affect mRNA stability (PubMed:25911097). May play a role in the regulation of protein synthesis via its interaction with ribosomes (PubMed:27507887).

Storage

Shipped at conditions	Conditional Ambient
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

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

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

Activity summary	Gemin 5 also known as GEMIN5 is a multi-functional RNA-binding protein functioning critically in several cellular mechanisms. It has a mass of approximately 170 kDa. Gemin 5 expresses in various tissues highlighting its diverse roles in cellular activities. One of its primary mechanical roles involves the

	recognition and binding of snRNA which is necessary for the spliceosomal snRNP assembly. It interacts with other proteins within the SMN complex to exert its function.
Biological function summary	Gemin 5 plays an important role in RNA processing pathways and is integral to the formation and functioning of the SMN complex. This complex involves several related proteins including Gemin 2 Gemin 3 and SMN1 and is essential for the biogenesis of small nuclear ribonucleoproteins (snRNPs). Gemin 5 possesses specific domains that allow the binding to snRNA facilitating the assembly of spliceosomal units which are critical for the splicing of pre-mRNA into mature mRNA.
Pathways	Gemin 5's involvement in spliceosomal snRNP assembly places it within the RNA processing and gene expression regulatory pathways. Its interaction with SMN1 and Gemin 3 positions it as an important component in these pathways specifically influencing the splicing pathway. The assembly of snRNPs and subsequent influencing of RNA splicing illustrate Gemin 5's role in maintaining gene expression fidelity which is pivotal for cellular function and homeostasis.
Associated diseases and disorders	Gemin 5's dysregulation or malfunction associates significantly with spinal muscular atrophy (SMA) and certain neurodegenerative conditions. This association mainly arises through its interaction with SMN1 which when mutated or deficient results in SMA due to impaired snRNP assembly and subsequent motor neuron degeneration. Additionally potential links exist with neurodegenerative disorders where RNA processing defects are implicated though the full scope of its involvement requires further research.

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

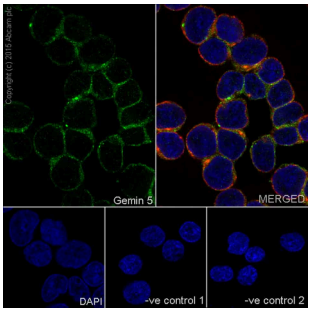
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

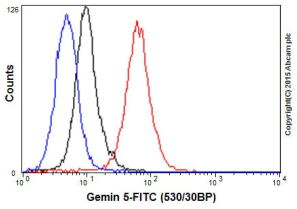
5 product images



Immunocytochemistry/ Immunofluorescence - Anti-Gemin 5 antibody [EPR17841] (ab201691)

Gemin 5 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Gemin 5 antibody

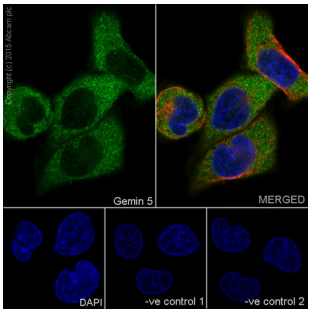
Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized Jurkat (Human T cell leukemia cells from peripheral blood) cells labeling Gemin 5 with ab201691 at 1/600 dilution followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/500 dilution (green). Confocal image showing cytoplasmic staining on Jurkat cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution (red).
The negative controls are as follows;
-ve control 1: ab201691 at 1/600 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/400 dilution.



Flow Cytometry (Intracellular) - Anti-Gemin 5 antibody [EPR17841] (ab201691)

Gemin 5 Flow Cytometry (Intracellular) staining using rabbit Anti-Gemin 5 antibody

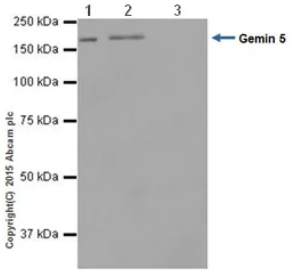
Intracellular flow cytometric analysis of 2% paraformaldehyde-fixed HEK-293 (Human epithelial cells from embryonic kidney) cells labeling Gemin 5 with ab201691 at 1/250 dilution (red) compared with a rabbit monoclonal IgG isotype control (ab172730;black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (FITC) at 1/150 dilution was used as the secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-Gemin 5 antibody [EPR17841] (ab201691)

Gemin 5 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Gemin 5 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling Gemin 5 with ab201691 at 1/600 dilution followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/500 dilution (green). Confocal image showing cytoplasmic staining on HeLa cell line. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution (red).
The negative controls are as follows;
-ve control 1: ab201691 at 1/600 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution.
-ve control 2: ab7291 (anti-Tubulin mouse mAb) at 1/1000 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/400 dilution.



Immunoprecipitation - Anti-Gemin 5 antibody [EPR17841] (ab201691)

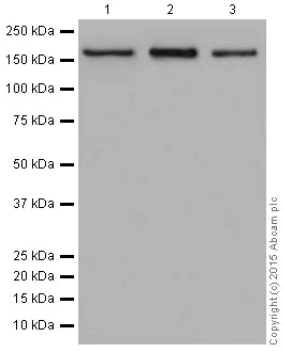
Gemin 5 was immunoprecipitated from 1mg of HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysate with ab201691 at 1/70 dilution. Western blot was performed from the immunoprecipitate using ab201691 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/1500 dilution.
Lane 1: HeLa whole cell lysate 10 µg (Input). Lane 2: ab201691 IP in HeLa whole cell lysate. Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab201691 in HeLa whole cell lysate.
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 seconds.

All lanes:
Immunoprecipitation - Anti-Gemin 5 antibody [EPR17841] (ab201691)

Predicted band size: 169 kDa

Exposure time: 3s



Western blot - Anti-Gemin 5 antibody [EPR17841] (ab201691)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-Gemin 5 antibody [EPR17841] (ab201691) at 1/1000 dilution

Lane 1:
HeLa (Human epithelial cells from cervix adenocarcinoma) cell lysate at 20 µg

Lane 2:
K562 (Human chronic myelogenous leukemia cells from bone marrow) cell lysate at 20 µg

Lane 3:
HEK-293 (Human epithelial cells from embryonic kidney) cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 169 kDa

Observed band size: 168 kDa

Exposure time: 7s

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.