

Product datasheet

Anti-SMN/Gemin 1 antibody [2B1] ab5831

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Overview

Product name	Anti-SMN/Gemin 1 antibody [2B1]
Description	Mouse monoclonal [2B1] to SMN/Gemin 1
Host species	Mouse
Tested applications	Suitable for: IHC-P, ICC/IF, ELISA, WB, IP, Flow Cyt
Species reactivity	Reacts with: Mouse, Human, Xenopus laevis
Immunogen	Recombinant full length protein corresponding to Human SMN/Gemin 1.

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle.
Storage buffer	Preservative: 0.1% Sodium azide Constituent: PBS
Purity	Protein A purified
Purification notes	Purified from tissue culture supernatant.
Clonality	Monoclonal
Clone number	2B1
Myeloma	Sp2/0
Isotype	IgG1

Applications

Our [Abpromise guarantee](#) covers the use of **ab5831** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

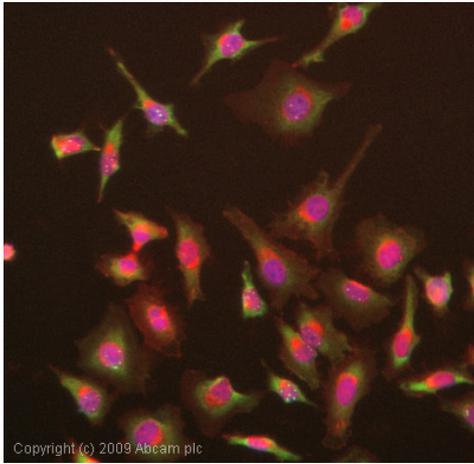
Application	Abreviews	Notes
IHC-P		Use a concentration of 5 µg/ml. Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Application	Abreviews	Notes
ICC/IF	★★★★★	Use at an assay dependent concentration.
ELISA		Use at an assay dependent concentration.
WB	★★★★☆	Use at an assay dependent concentration. Detects a band of approximately 42 kDa (predicted molecular weight: 35 kDa).
IP		Use at an assay dependent concentration.
Flow Cyt		Use 1µg for 10 ⁶ cells. ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Target

Function	The SMN complex plays an essential role in spliceosomal snRNP assembly in the cytoplasm and is required for pre-mRNA splicing in the nucleus. It may also play a role in the metabolism of snoRNPs.
Tissue specificity	Expressed in a wide variety of tissues. Expressed at high levels in brain, kidney and liver, moderate levels in skeletal and cardiac muscle, and low levels in fibroblasts and lymphocytes. Also seen at high levels in spinal cord. Present in osteoclasts and mononuclear cells (at protein level).
Involvement in disease	<p>Defects in SMN1 are the cause of spinal muscular atrophy autosomal recessive type 1 (SMA1) [MIM:253300]. Spinal muscular atrophy refers to a group of neuromuscular disorders characterized by degeneration of the anterior horn cells of the spinal cord, leading to symmetrical muscle weakness and atrophy. Autosomal recessive forms are classified according to the age of onset, the maximum muscular activity achieved, and survivorship. The severity of the disease is mainly determined by the copy number of SMN2, a copy gene which predominantly produces exon 7-skipped transcripts and only low amount of full-length transcripts that encode for a protein identical to SMN1. Only about 4% of SMA patients bear one SMN1 copy with an intragenic mutation. SMA1 is a severe form, with onset before 6 months of age. SMA1 patients never achieve the ability to sit.</p> <p>Defects in SMN1 are the cause of spinal muscular atrophy autosomal recessive type 2 (SMA2) [MIM:253550]. SMA2 is an autosomal recessive spinal muscular atrophy of intermediate severity, with onset between 6 and 18 months. Patients do not reach the motor milestone of standing, and survive into adulthood.</p> <p>Defects in SMN1 are the cause of spinal muscular atrophy autosomal recessive type 3 (SMA3) [MIM:253400]. SMA3 is an autosomal recessive spinal muscular atrophy with onset after 18 months. SMA3 patients develop ability to stand and walk and survive into adulthood.</p> <p>Defects in SMN1 are the cause of spinal muscular atrophy autosomal recessive type 4 (SMA4) [MIM:271150]. SMA4 is an autosomal recessive spinal muscular atrophy characterized by symmetric proximal muscle weakness with onset in adulthood and slow disease progression. SMA4 patients can stand and walk.</p>
Sequence similarities	<p>Belongs to the SMN family.</p> <p>Contains 1 Tudor domain.</p>
Cellular localization	Cytoplasm. Nucleus > gem. Localized in subnuclear structures next to coiled bodies, called

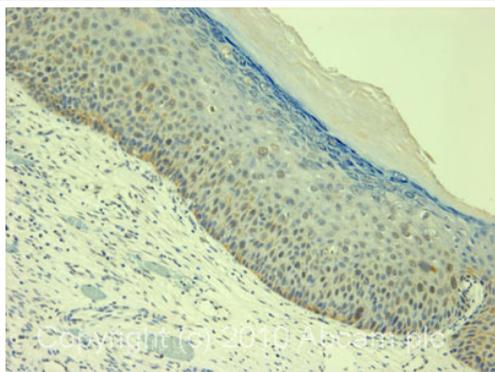
Images



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Immunocytochemistry/ Immunofluorescence - Anti-SMN/Gemin 1 antibody [2B1] (ab5831)

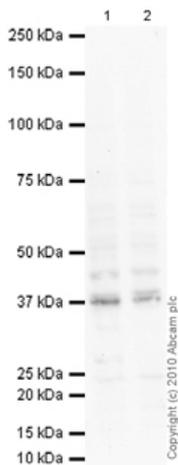
ICC/IF image of ab5831 stained HeLa cells. The cells were 4% PFA fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab5831, 1µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-SMN/Gemin 1 antibody [2B1] (ab5831)

IHC image of ab5831 staining in human normal cervical carcinoma formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab5831, 5µg/ml, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.



Western blot - Anti-SMN/Gemin 1 antibody [2B1] (ab5831)

All lanes : Anti-SMN/Gemin 1 antibody [2B1] (ab5831) at 1 µg/ml

Lane 3 : HepG2 (Human hepatocellular liver carcinoma cell line) Whole Cell Lysate

Lane 4 : HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate

Lysates/proteins at 10 µg per lane.

Secondary

All lanes : Goat polyclonal to Mouse IgG - H&L - Pre-Adsorbed (HRP) (ab65485) at 1/3000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 35 kDa

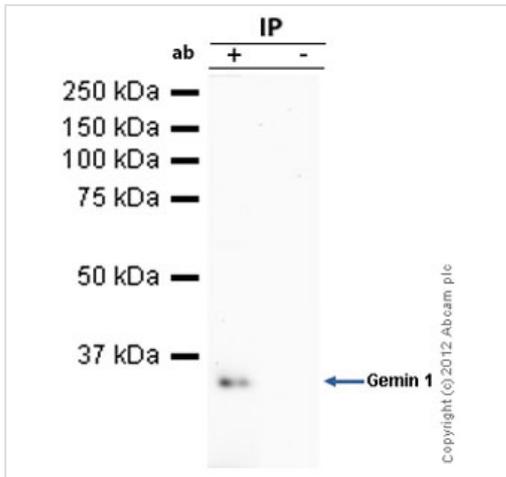
Observed band size: 37 kDa

[why is the actual band size different from the predicted?](#)

Additional bands at: 45 kDa. We are unsure as to the identity of these extra bands.

Exposure time: 20 minutes

Gemin 1 contains a number of potential phosphorylation sites (SwissProt) which may explain its migration at a higher molecular weight than predicted.



Immunoprecipitation - Anti-SMN/Gemin 1 antibody [2B1] (ab5831)

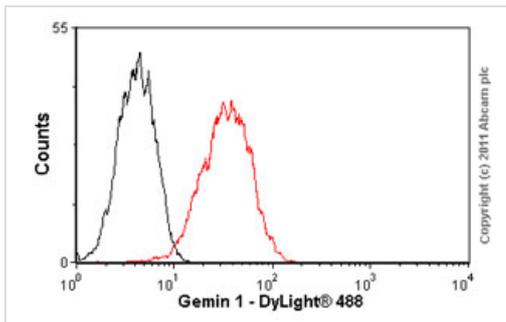
Gemin 1 was immunoprecipitated using 0.5mg HeLa whole cell extract, 5µg of Mouse monoclonal to Gemin 1 (ab5831) and 50µl of protein G magnetic beads (+). No antibody was added to the control (-).

The antibody was incubated under agitation with Protein G beads for 10min, HeLa whole cell extract lysate diluted in RIPA buffer was added to each sample and incubated for a further 10min under agitation.

Proteins were eluted by addition of 40µl SDS loading buffer and incubated for 10min at 70°C; 10µl of each sample was separated on a SDS PAGE gel, transferred to a nitrocellulose membrane, blocked with 5% BSA and probed with ab5831.

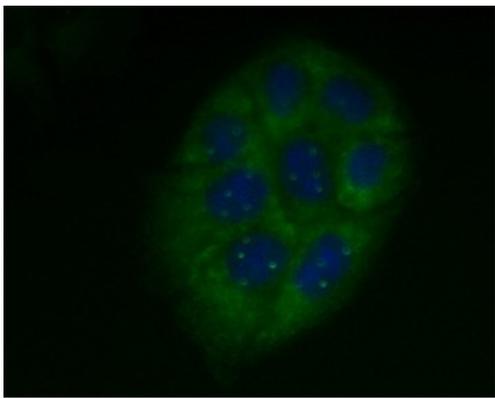
Secondary: Goat polyclonal to mouse IgG light chain specific (HRP) at 1/5000 dilution.

Band: 32kDa: Gemin 1



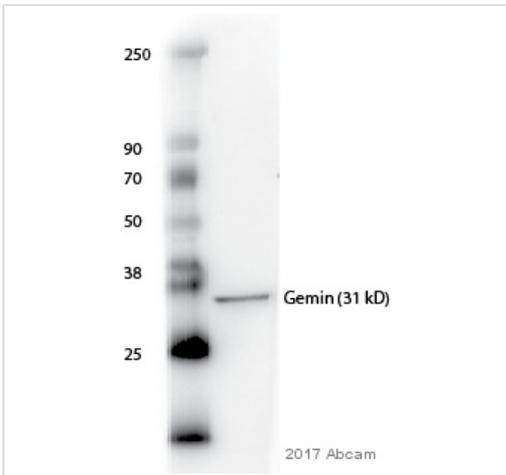
Flow Cytometry - Anti-SMN/Gemin 1 antibody [2B1] (ab5831)

Overlay histogram showing HepG2 cells stained with ab5831 (red line). The cells were fixed with 4% paraformaldehyde (10 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 (ab5831, 1µg/1x10⁶ 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/1x10⁶ cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HepG2 cells fixed with 100% methanol (5 min)/permeabilized in 0.1% PBS-Tween used under the same conditions.



Immunocytochemistry/ Immunofluorescence - Anti-SMN/Gemin 1 antibody [2B1] (ab5831)
Image courtesy of an anonymous Abreview.

ab5831 staining Gemin 1 in human HeLa cells by Immunocytochemistry/ Immunofluorescence. The cells were fixed in methanol and then blocked using 0.2% fish scale gelatin for 1 hour at 25°C. Samples were then incubated with primary antibody at 1/300 for 20 minutes at 25°C. The secondary antibody used was a donkey anti-mouse IgG conjugated to Alexa Fluor® 488 (green) used at a 1/500 dilution. Counterstained with DAPI (blue). Gemin 1 is clearly visible in the cytoplasm and also as small dots in the nucleus (cajal bodies).



Western blot - Anti-SMN/Gemin 1 antibody [2B1] (ab5831)

This image is courtesy of an abreview submitted by Samantha Jeschonek.

Anti-SMN/Gemin 1 antibody [2B1] (ab5831) at 1/100 dilution + *Xenopus laevis* st II-III oocytes whole cell lysate at 20 µg

Secondary

Goat Anti-Mouse IgG Fc (HRP) ([ab97265](#)) at 1/25000 dilution

Performed under reducing conditions.

Predicted band size: 35 kDa

Observed band size: 31 kDa [why is the actual band size different from the predicted?](#)

Exposure time: 30 seconds

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