

Anti-SMN1/2 Picoband Antibody
Catalog # ABO12089**Specification**

Anti-SMN1/2 Picoband Antibody - Product Information

Application	WB, IHC-P
Primary Accession	Q16637
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized

Description

Rabbit IgG polyclonal antibody for Survival motor neuron protein(SMN1/2) detection. Tested with WB, IHC-P in Human;Mouse;Rat.

Reconstitution

Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Anti-SMN1/2 Picoband Antibody - Additional Information

Gene ID 6606;6607

Other Names

Survival motor neuron protein, Component of gems 1, Gemin-1, SMN1, SMN, SMNT

Calculated MW

31849 MW KDa

Application Details

Immunohistochemistry(Paraffin-embedded Section), 0.5-1 µg/ml, Human, Mouse, Rat, By Heat
Western blot, 0.1-0.5 µg/ml, Human, Mouse, Rat

Subcellular Localization

Cytoplasm. Nucleus, gem. Nucleus, Cajal body. Cytoplasmic granule. Cytoplasm, myofibril, sarcomere, Z line . Colocalizes with Actn at the Z-line of skeletal muscle (By similarity). Under stress conditions colocalizes with RPP20/POP7 in punctuated cytoplasmic granules. Colocalized and redistributed with ZPR1 from the cytoplasm to nuclear gems (Gemini of coiled bodies) and Cajal bodies. .

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). .

Protein Name

Survival motor neuron protein

Contents

Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na₂HPO₄, 0.05mg NaN₃.

Immunogen

A synthetic peptide corresponding to a sequence at the N-terminus of human SMN1/2(22-52aa RRG TGQSDDS DIWDDTALIKAYDKAVASFKH), identical to the related mouse and rat sequences.

Purification

Immunogen affinity purified.

Cross Reactivity

No cross reactivity with other proteins.

Storage

At -20°C for one year. After receipt, at 4°C for one month. It can also be aliquotted and stored frozen at -20°C for a longer time. Avoid repeated freezing and thawing.

Sequence Similarities

Belongs to the SMN family.

Anti-SMN1/2 Picoband Antibody - Protein Information**Name** SMN1**Synonyms** SMN, SMNT**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](http://www.uniprot.org/citations/18984161), PubMed: [9845364](http://www.uniprot.org/citations/9845364)). 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](http://www.uniprot.org/citations/18984161)). 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](http://www.uniprot.org/citations/18984161)). To assemble core snRNPs, the SMN complex accepts the trapped 5Sm proteins from CLNS1A forming an intermediate (PubMed: [18984161](http://www.uniprot.org/citations/18984161)). Within the SMN complex, SMN1 acts as a structural backbone and together with GEMIN2 it gathers the Sm complex subunits (PubMed: [17178713](http://www.uniprot.org/citations/17178713), PubMed: [21816274](http://www.uniprot.org/citations/21816274), PubMed: [22101937](http://www.uniprot.org/citations/22101937)). 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](http://www.uniprot.org/citations/31799625)). Ensures the correct splicing of U12 intron-containing genes that may be important for normal motor and proprioceptive neurons development (PubMed: [23063131](http://www.uniprot.org/citations/23063131)). Also required for resolving RNA-DNA hybrids created by RNA polymerase II, that form R-loop in transcription terminal regions, an important step in proper transcription termination (PubMed: [26700805](http://www.uniprot.org/citations/26700805)). May also play a role in the metabolism of small nucleolar ribonucleoprotein (snoRNPs).

Cellular Location

Nucleus, gem. Nucleus, Cajal body. Cytoplasm. Cytoplasmic granule. Perikaryon. Cell projection, neuron projection. Cell projection, axon {ECO:0000250|UniProtKB:P97801}. Cytoplasm, myofibril, sarcomere, Z line {ECO:0000250|UniProtKB:P97801}. Note=Colocalizes with actin and at the Z-line of skeletal muscle (By similarity). Under stress conditions colocalizes with RPP20/POP7 in punctuated cytoplasmic granules (PubMed:14715275). Colocalized and redistributed with ZPR1 from the cytoplasm to nuclear gems (Gemini of coiled bodies) and Cajal bodies (PubMed:11283611). Colocalizes with FMR1 in cytoplasmic granules in the soma and neurite cell processes (PubMed:18093976) {ECO:0000250|UniProtKB:P97801, ECO:0000269|PubMed:11283611, ECO:0000269|PubMed:14715275, ECO:0000269|PubMed:18093976}

Tissue Location

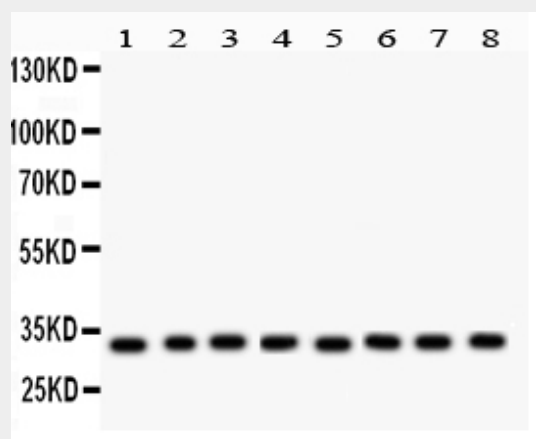
Expressed in a wide variety of tissues. Expressed at high levels in brain, kidney and liver, moderate levels in skeletal and cardiac muscle, and low levels in fibroblasts and lymphocytes. Also seen at high levels in spinal cord. Present in osteoclasts and mononuclear cells (at protein level).

Anti-SMN1/2 Picoband Antibody - Protocols

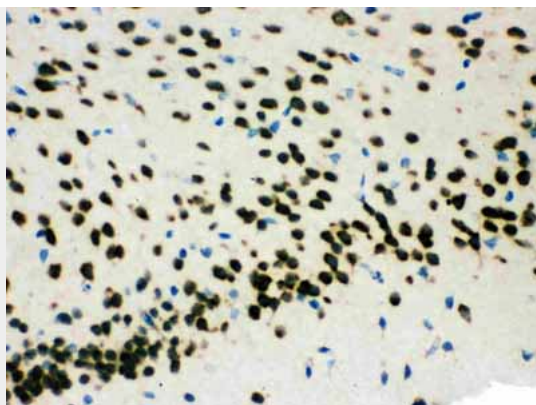
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

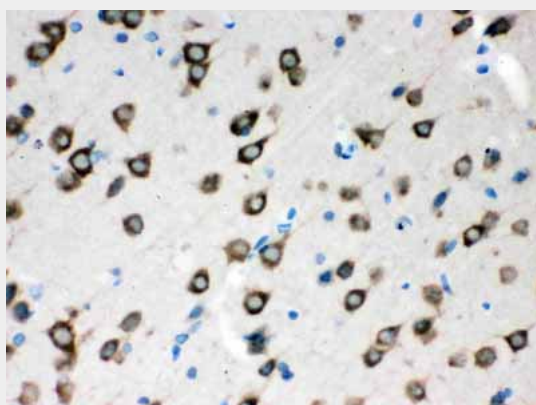
Anti-SMN1/2 Picoband Antibody - Images



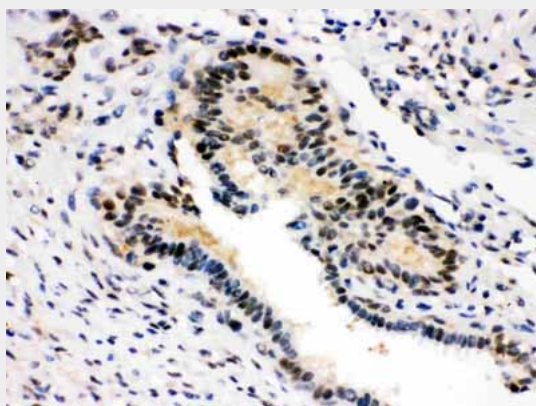
Anti- SMN1/2 Picoband antibody, ABO12089, Western blotting All lanes: Anti SMN1/2(ABO12089) at 0.5ug/ml
Lane 1: Rat Brain Tissue Lysate at 50ug
Lane 2: Mouse Brain Tissue Lysate at 50ug
Lane 3: Rat Liver Tissue Lysate at 50ug
Lane 4: Mouse Liver Tissue Lysate at 50ug
Lane 5: 293T Whole Cell Lysate at 40ug
Lane 6: SMMC Whole Cell Lysate at 40ug
Lane 7: HEPG2 Whole Cell Lysate at 40ug
Lane 8: HELA Whole Cell Lysate at 40ug
Predicted bind size: 32KD
Observed bind size: 32KD



Anti- SMN1/2 Picoband antibody, ABO12089,IHC(P)IHC(P): Mouse Brain Tissue



Anti- SMN1/2 Picoband antibody, ABO12089,IHC(P)IHC(P): Rat Brain Tissue



Anti- SMN1/2 Picoband antibody, ABO12089,IHC(P)IHC(P): Human Mammary Cancer Tissue

Anti-SMN1/2 Picoband Antibody - Background

This gene is part of a 500 kb inverted duplication on chromosome 5q13. This duplicated region contains at least four genes and repetitive elements which make it prone to rearrangements and deletions. The repetitiveness and complexity of the sequence have also caused difficulty in determining the organization of this genomic region. The telomeric and centromeric copies of this gene are nearly identical and encode the same protein. However, mutations in this gene, the telomeric copy, are associated with spinal muscular atrophy; mutations in the centromeric copy do not lead to disease. The centromeric copy may be a modifier of disease caused by mutation in the telomeric copy. The critical sequence difference between the two genes is a single nucleotide in exon 7, which is thought to be an exon splice enhancer. Note that the nine exons of both the telomeric and centromeric copies are designated historically as exon 1, 2a, 2b, and 3-8. It is

thought that gene conversion events may involve the two genes, leading to varying copy numbers of each gene. The protein encoded by this gene localizes to both the cytoplasm and the nucleus. Within the nucleus, the protein localizes to subnuclear bodies called gems which are found near coiled bodies containing high concentrations of small ribonucleoproteins (snRNPs). This protein forms heteromeric complexes with proteins such as SIP1 and GEMIN4, and also interacts with several proteins known to be involved in the biogenesis of snRNPs, such as hnRNP U protein and the small nucleolar RNA binding protein. Multiple transcript variants encoding distinct isoforms have been described.