KO-Validated Anti-SMN1 Rabbit Monoclonal Antibody
Rabbit monoclonal antibody
Catalog # AGI2423

Specification

KO-Validated Anti-SMN1 Rabbit Monoclonal Antibody - Product Information

Application	**WB, FC, ICC**
Primary Accession	Q16637
Reactivity	**Human**
Clonality	**Monoclonal**
Isotype	**Rabbit IgG**
Calculated MW	**Predicted, 32 kDa; observed, 36 kDa KDa**
Gene Name	**SMN1**
Aliases	**SMN1; Survival Of Motor Neuron 1, Telomeric; SMNT; TDRD16A; Gemin-1; BCD541; GEMIN1; SMA1; SMA2; SMA3; Survival Motor Neuron Protein; Tudor Domain Containing 16A; Component Of Gems 1; SMA@; SMA; SMN; Spinal Muscular Atrophy (Werdnig-Hoffmann Disease, Kugelberg-Welander Disease); Survival Motor Neuron 1 Protein; T-BCD541; SMA4; SMNC**
Immunogen	**A synthesized peptide derived from human SMN1**

KO-Validated Anti-SMN1 Rabbit Monoclonal Antibody - Additional Information

Gene ID	**6606;6607**
Other Names	

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

KO-Validated Anti-SMN1 Rabbit Monoclonal 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, PubMed: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). 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). Within the SMN complex, SMN1 acts as a structural backbone and together with GEMIN2 it gathers the Sm complex subunits (PubMed:17178713, PubMed:21816274, PubMed: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). Ensures the correct splicing of U12 intron- containing genes that may be important for normal motor and proprioceptive neurons development (PubMed: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). 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).
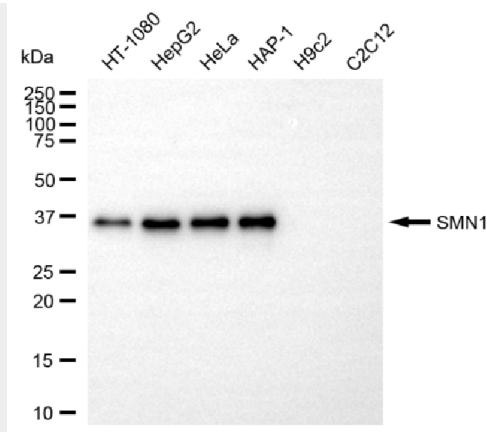
KO-Validated Anti-SMN1 Rabbit Monoclonal Antibody - Protocols

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

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

**KO-Validated Anti-SMN1 Rabbit Monoclonal Antibody - Images**
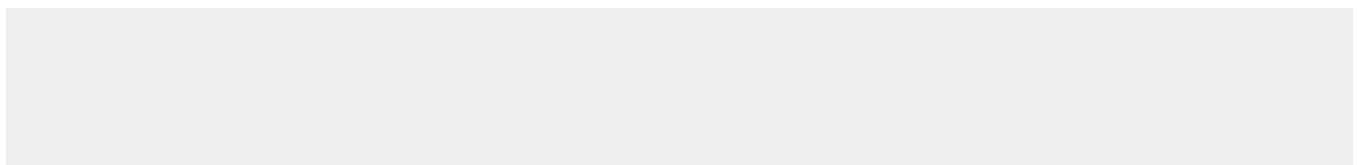
Western blotting analysis using anti-SMN1 antibody (Cat#AGI2423). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-SMN1 antibody (Cat#AGI2423, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.
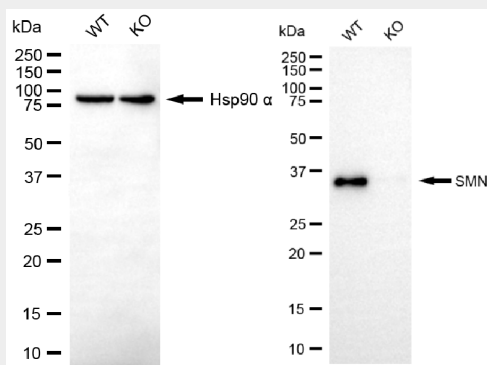

Western blotting analysis using anti-SMN1 antibody (Cat#AGI2423). SMN1 expression in wild type (WT) and SMN1 knockout (KO) HeLa cells with 20 µg of total cell lysates. Hsp90 α serves as a loading control. The blot was incubated with anti-SMN1 antibody (Cat#AGI2423, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.
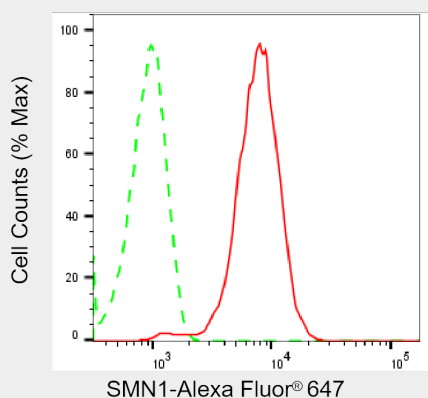
Flow cytometric analysis of SMN1 expression in HepG2 cells using anti-SMN1 antibody (Cat#AGI2423, 1:2,000). Green, isotype control; red, SMN1.
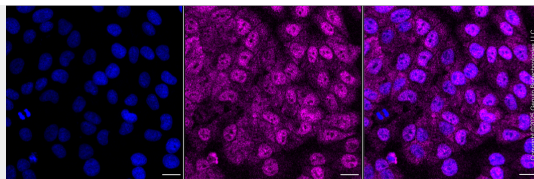
Immunocytochemical staining of HepG2 cells with anti-SMN1 antibody (Cat#AGI2423, 1:1,000). Nuclei were stained blue with DAPI; SMN1 was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein abundance based on laser Intensity and smart gain: Medium. Scale bar, 20 μm.