SANTA CRUZ BIOTECHNOLOGY, INC.

Gemin2 (3F8): sc-32806

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Spinal muscular atrophy (SMA) is an autosomal recessive neurodegenerative disease characterized by loss of motor neurons in the spinal cord. SMA is caused by deletion or loss-of-function mutations in the SMN (survival of motor neuron) gene. Gemin2 (formerly known as SIP1 for SMN interacting protein) associates directly with SMN and is a part of the SMN complex containing Gemin3 (a DEAD box RNA helicase), Gemin4, Gemin5 and Gemin6, as well as several spliceosomal snRNP proteins. The SMN complex plays an essential role in splicesomal snRNP assembly in the cytoplasm and is required for pre-mRNA splicing of the nucleus. The SMN complex is found in both the cytoplasm and the nucleus. The nuclear form is concentrated in subnuclear bodies called gems (Gemini of the coiled bodies). The SMN-Gemin2 complex is associated with spliceosomal snRNAs U1 and U5. Gemin2 is expressed in spinal cord. Gemin2 can be induced by TGFβ treatment and expression is high in several E-cadherin negative human carcinoma cell lines. SMN in expressed in a wide variety of tissues including brain, kidney, liver and spinal cord, and moderately in skeletal and cardiac muscle.

REFERENCES

1. Fischer, U., et al. 1997. The SMN-SIP1 complex has an essential role in spliceosomal snRNP biogenesis. Cell 90: 1023-1029.
2. Coovert, D., et al. 1997. The survival motor neuron protein in spinal muscular atrophy. Hum. Mol. Genet. 6: 1205-1214.

CHROMOSOMAL LOCATION

Genetic locus: GEMIN2 (human) mapping to 14q21.1; Sip1 (mouse) mapping to 12 C1.

SOURCE

Gemin2 (3F8) is a mouse monoclonal antibody raised against recombinant Gemin2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Gemin2 (3F8) is recommended for detection of Gemin2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Gemin2 siRNA (h): sc-42129, Gemin2 siRNA (m): sc-42130, Gemin2 shRNA Plasmid (h): sc-42129-SH, Gemin2 shRNA Plasmid (m): sc-42130-SH, Gemin2 shRNA (h) Lentiviral Particles: sc-42129-V and Gemin2 shRNA (m) Lentiviral Particles: sc-42130-V.

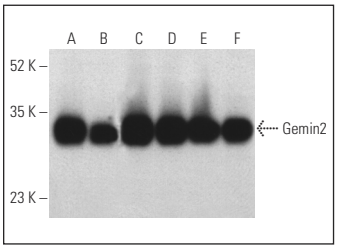
Molecular Weight of Gemin2: 32-34 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, RAW 264.7 whole cell lysate: sc-2211 or KNRK whole cell lysate: sc-2214.

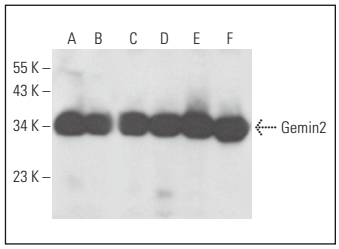
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Gemin2 (3F8): sc-32806. Western blot analysis of Gemin2 expression in HeLa (**A**), WI-38 (**B**), 3T3-L1 (**C**), RAW 264.7 (**D**), KNRK (**E**) and 3611-RF (**F**) whole cell lysates. Detection reagent used: m-IgG_{2b} BP-HRP: sc-542741.



Gemin2 (3F8): sc-32806. Western blot analysis of Gemin2 expression in HeLa (**A**), WI-38 (**B**), KNRK (**C**), 3611-RF (**D**), RAW 264.7 (**E**) and 3T3-L1 (**F**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Lorson, M.A., et al. 2008. Identification and characterisation of a nuclear localisation signal in the SMN associated protein, Gemin4. Biochem. Biophys. Res. Commun. 375: 33-37.
2. Todd, A.G., et al. 2010. Analysis of SMN-neurite granules: core Cajal body components are absent from SMN-cytoplasmic complexes. Biochem. Biophys. Res. Commun. 397: 479-485.
3. Stejskalová, E. and Stanek, D. 2014. The splicing factor U1-70K interacts with the SMN complex and is required for nuclear gem integrity. J. Cell Sci. 127: 3909-3915.
4. Liu, H., et al. 2018. Alternative splicing analysis in human monocytes and macrophages reveals MBNL1 as major regulator. Nucleic Acids Res. 46: 6069-6086.
5. Wang, H., et al. 2018. CRISPR-mediated programmable 3D genome positioning and nuclear organization. Cell 175: 1405-1417.e14.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.