SANTA CRUZ BIOTECHNOLOGY, INC.

Gemin3 (D-5): sc-271853

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. Gemin3, also known as DP103, DDX20, DEAD-box protein DP130 and DEAD/H box 20, is a protein product of human chromosome 1p13.2. It associates directly with SMN and is a part of the SMN complex containing Gemin2, Gemin4, Gemin5 and Gemin6, as well as several spliceosomal snRNP proteins. The SMN complex plays an essential role in spliceosomal snRNP assembly in the cytoplasm and is required for pre-mRNA splicing of the nucleus. It is found in both the cytoplasm and the nucleus. The nuclear form is concentrated in subnuclear bodies called gems (for Gemini of the coiled bodies). Gemin3 also interacts with SmB, SmD2 and SmD3. It contains the conserved motif Asp-Glu-Ala-Asp (DEAD) characteristic of DEAD-box proteins. Gemin3 is a putative RNA helicase and shows ATPase activity. It is expressed in B and T cell neuroblastoma-derived cell lines, malignant melanoma tumor, normal testis and is expressed in low levels in colon, skeletal muscle, liver, kidney and lung.

CHROMOSOMAL LOCATION

Genetic locus: DDX20 (human) mapping to 1p13.2; Ddx20 (mouse) mapping to 3 F2.2.

SOURCE

Gemin3 (D-5) is a mouse monoclonal antibody raised against amino acids 216-360 mapping within an internal region of Gemin3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

Gemin3 (D-5) is recommended for detection of Gemin3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Gemin3 siRNA (h): sc-43798, Gemin3 siRNA (m): sc-60050, Gemin3 shRNA Plasmid (h): sc-43798-SH, Gemin3 shRNA Plasmid (m): sc-60050-SH, Gemin3 shRNA (h) Lentiviral Particles: sc-43798-V and Gemin3 shRNA (m) Lentiviral Particles: sc-60050-V.

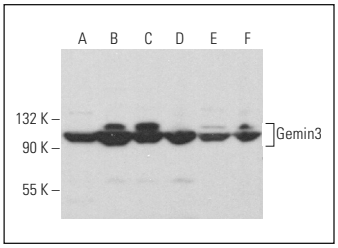
Molecular Weight of Gemin3: 103 kDa.

Positive Controls: SJRH30 cell lysate: sc-2287, NTERA-2 cl.D1 whole cell lysate: sc-364181 or Hep G2 cell lysate: sc-2227.

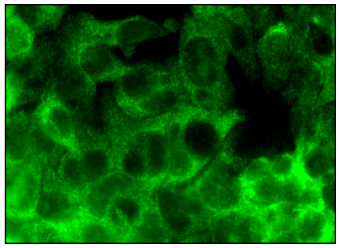
RECOMMENDED SUPPORT REAGENTS

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



Gemin3 (D-5): sc-271853. Western blot analysis of Gemin3 expression in Hep G2 (**A**), HUV-EC-C (**B**), SJRH30 (**C**), NTERA-2 cl.D1 (**D**), F9 (**E**) and NIH/3T3 (**F**) whole cell lysates.



Gemin3 (D-5): sc-271853. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Rafałowska, J., et al. 2014. Diverse expression of selected SMN complex proteins in humans with sporadic amyotrophic lateral sclerosis and in a transgenic rat model of familial form of the disease. PLoS ONE 9: e104614.
2. Sulejczak, D., et al. 2018. Sporadic amyotrophic lateral sclerosis: is SMN-Gemins protein complex of importance for the relative resistance of oculomotor nucleus motoneurons to degeneration? Folia Neuropathol. 56: 308-320.
3. Miralles, M.P., et al. 2022. Survival motor neuron protein and neurite degeneration are regulated by Gemin3 in spinal muscular atrophy motoneurons. Front. Cell. Neurosci. 16: 1054270.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.