SANTA CRUZ BIOTECHNOLOGY, INC.

Spastin (Sp 3G11/1): sc-53443

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The AAA protein family members share an ATPase domain and have roles in various cellular processes including intracellular motility, membrane trafficking, proteolysis, protein folding and organelle biogenesis. Spastin, a member of the AAA protein family, is a 616 amino acid protein and is involved in the function or assembly of nuclear protein complexes. The Spastin protein is expressed ubiquitously and localizes to the nucleus and the cytoplasm where it may also be involved in microtubule dynamics. Mutations in the Spastin gene (SPAST, SPG4) cause the most common form of spastic paraplegia 4, an autosomal dominant form of hereditary spastic paraplegia (HSP). HSPs comprise a group of inherited neurological disorders characterized by spastic lower extremity weakness due to a length-dependent, retrograde axonopathy of corticospinal motor neurons. SPAST-specific mutations account for approximately 40% of all autosomal dominant HSPs.

CHROMOSOMAL LOCATION

Genetic locus: SPAST (human) mapping to 2p22.3; Spast (mouse) mapping to 17 E2.

SOURCE

Spastin (Sp 3G11/1) is a mouse monoclonal antibody raised against recombinant Spastin of human origin.

PRODUCT

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

Spastin (Sp 3G11/1) is available conjugated to agarose (sc-53443 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53443 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53443 PE), fluorescein (sc-53443 FITC), Alexa Fluor® 488 (sc-53443 AF488), Alexa Fluor® 546 (sc-53443 AF546), Alexa Fluor® 594 (sc-53443 AF594) or Alexa Fluor® 647 (sc-53443 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53443 AF680) or Alexa Fluor® 790 (sc-53443 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Spastin (Sp 3G11/1) is recommended for detection of Spastin 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 Spastin siRNA (h): sc-61603, Spastin siRNA (m): sc-61604, Spastin shRNA Plasmid (h): sc-61603-SH, Spastin shRNA Plasmid (m): sc-61604-SH, Spastin shRNA (h) Lentiviral Particles: sc-61603-V and Spastin shRNA (m) Lentiviral Particles: sc-61604-V.

Molecular Weight of Spastin long isoform: 64-68 kDa.

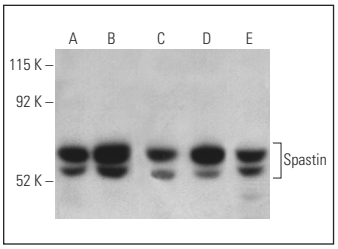
Molecular Weight of Spastin short isoform: 55-60 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, Jurkat whole cell lysate: sc-2204 or HeLa whole cell lysate: sc-2200.

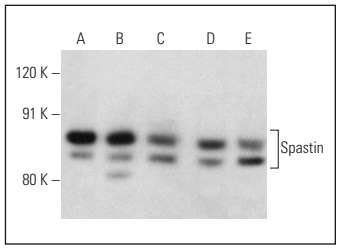
STORAGE

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

DATA



Spastin (Sp 3G11/1): sc-53443. Western blot analysis of Spastin expression in Jurkat (**A**), PC-3 (**B**), MCF7 (**C**), HeLa (**D**) and RAW 264.7 (**E**) whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



Spastin (Sp 3G11/1): sc-53443. Western blot analysis of Spastin expression in Jurkat (**A**), PC-3 (**B**), MCF7 (**C**), NIH/3T3 (**D**) and RAW 264.7 (**E**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Connell, J.W., et al. 2009. Spastin couples microtubule severing to membrane traffic in completion of cytokinesis and secretion. Traffic 10: 42-56.
2. Henson, B.J., et al. 2012. Transcriptional and post-transcriptional regulation of SPAST, the gene most frequently mutated in hereditary spastic paraplegia. PLoS ONE 7: e36505.
3. Fackler, M., et al. 2014. The GAR domain of GAS2L3 mediates binding to the chromosomal passenger complex and is required for localization of GAS2L3 to the constriction zone during abscission. FEBS J. 281: 2123-2135.
4. Vietri, M., et al. 2015. Spastin and ESCRT-III coordinate mitotic spindle disassembly and nuclear envelope sealing. Nature 522: 231-235.
5. Kamranvar, S.A., et al. 2016. Integrin signaling via FAK-Src controls cytokinetic abscission by decelerating PLK1 degradation and subsequent recruitment of CEP55 at the midbody. Oncotarget 7: 30820-30830.
6. Barbiero, I., et al. 2017. CDKL5 localizes at the centrosome and midbody and is required for faithful cell division. Sci. Rep. 7: 6228.
7. Ventimiglia, L.N., et al. 2018. CC2D1B coordinates ESCRT-III activity during the mitotic reformation of the nuclear envelope. Dev. Cell 47: 547-563.e6.
8. Sardina, F., et al. 2020. HIPK2 is required for midbody remnant removal through autophagy-mediated degradation. Front. Cell Dev. Biol. 8: 572094.
9. Yang, Y., et al. 2022. Rab3A interacts with Spastin to regulate neurite outgrowth in hippocampal neurons. Biochem. Biophys. Res. Commun. 643: 77-87.
10. Sardina, F., et al. 2023. New cellular imaging-based method to distinguish SPG4 subtype of hereditary spastic paraplegia. Eur. J. Neurol. E-published.

RESEARCH USE

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