SANTA CRUZ BIOTECHNOLOGY, INC.

Sm B/B'/N (A-5): sc-374009

BACKGROUND

mRNA precursors are processed in the spliceosome, where introns are excised to form continuous coding sequences. The major components of the spliceosome are RNA-protein complexes called snRNPs (small nuclear ribonucleoprotein particles). The core proteins that are common to all snRNPs are called the Sm proteins, and are designated B, B', D1, D2, D3, E, F and G. Antibodies recognizing Sm proteins are frequently generated in autoimmune diseases, including in patients with systemic lupus erythematosus. Sm proteins are characterized by a conserved Sm sequence motif in two parts, Sm1 and Sm2, which are separated by a variable region.

REFERENCES

1. Lerner, M.R., et al. 1979. Antibodies to small nuclear RNAs complexed with proteins are produced by patients with systemic lupus erythematosus. Proc. Natl. Acad. Sci. USA 76: 5495-5499.
2. Steitz, J.A., et al. 1988. Functions of the abundant U-snRNPs. In Birnstall, M.L., ed., Small Nuclear Ribonucleoprotein Particles: Structure and Function of Major and Minor Small Nuclear Ribonucleoprotein Particles. New York: Springer-Verlag. 115-154.
3. Luhrmann, R., et al. 1990. Structure of spliceosomal snRNPs and their role in pre-mRNA splicing. Biochim. Biophys. Acta 1087: 265-292.
4. Hermann, H., et al. 1995. snRNP Sm proteins share two evolutionarily conserved sequence motifs which are involved in Sm protein-protein interactions. EMBO J. 14: 2076-2088.

CHROMOSOMAL LOCATION

Genetic locus: SNRPB (human) mapping to 20p13, SNRPN (human) mapping to 15q11.2; Snrpb (mouse) mapping to 2 F1, Snrpn (mouse) mapping to 7 C.

SOURCE

Sm B/B'/N (A-5) is a mouse monoclonal antibody raised against amino acids 1-240 representing full length SmB 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.

Sm B/B'/N (A-5) is available conjugated to agarose (sc-374009 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-374009 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374009 PE), fluorescein (sc-374009 FITC), Alexa Fluor® 488 (sc-374009 AF488), Alexa Fluor® 546 (sc-374009 AF546), Alexa Fluor® 594 (sc-374009 AF594) or Alexa Fluor® 647 (sc-374009 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374009 AF680) or Alexa Fluor® 790 (sc-374009 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

APPLICATIONS

Sm B/B'/N (A-5) is recommended for detection of Sm B, Sm B' and Sm N 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Sm B/B'/N (A-5) is also recommended for detection of Sm B, Sm B' and Sm N in additional species, including equine and canine.

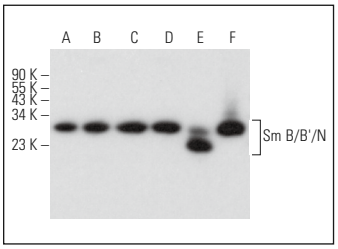
Molecular Weight of Sm B/B'/N: 28 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, HeLa nuclear extract: sc-2120 or K-562 nuclear extract: sc-2130.

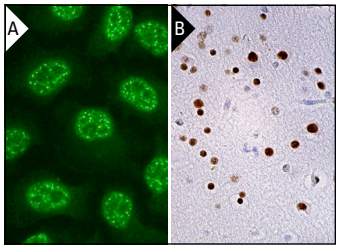
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Sm B/B'/N (A-5): sc-374009. Western blot analysis of Sm B/B'/N expression in Neuro-2A (**A**), NIH/3T3 (**B**), A-10 (**C**) and A549 (**D**) whole cell lysates and K-562 (**E**) and HeLa (**F**) nuclear extracts.



Sm B/B'/N (A-5): sc-374009. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human brain tissue showing nuclear staining of neuronal and glial cells (**B**).

SELECT PRODUCT CITATIONS

1. Turner, B.R.H., et al. 2023. Non-ubiquitous expression of core spliceosomal protein SmB/B' in chick and mouse embryos. Dev. Dyn. 252: 276-293.
2. Knill, C., et al. 2024. Defects of the spliceosomal gene SNRPB affect osteo- and chondro-differentiation. FEBS J. 291: 272-291.

RESEARCH USE

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