

Sm D2 (E-14): sc-240900

BACKGROUND

U1, U2, U4, U5, U6 and U7 are small nuclear ribonucleoproteins (snRNPs) that comprise the spliceosome in eukaryotes. Each UsnRNP contains common Sm proteins B/B', D1, D2, D3, E, F and G. The Sm proteins pair up as D1-D2, B/B'-D3 and E-F-G to form RNA-free hetero-oligomers in the cytoplasm. Sm proteins aid in the cytoplasmic construction of the UsnRNPs by binding to a conserved Sm site on UsnRNA and forming a stable snRNP core complex. Sm D1, D2 and D3 are present in U1, U2, U4/5 and U5 but not U7 snRNPs in human and mouse cells. U7 snRNPs contain Lsm10, an Sm D1-like protein. Autoantibodies produced in patients suffering from systemic lupus erythematosus react predominantly with Sm B/B', D1 and D3. The major linear epitope of these autoantibodies includes the C-terminal RG dipeptide repeats found in Sm D1 and D3. Sm D2 is a 112 amino acid nuclear protein that is required for pre-mRNA splicing and for snRNP biogenesis.

REFERENCES

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3. Lehmeier, T., et al. 1994. cDNA cloning of the Sm proteins D2 and D3 from human small nuclear ribonucleoproteins: evidence for a direct D1-D2 interaction. *Proc. Natl. Acad. Sci. USA* 91: 12317-12321.
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.
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6. Raker, V.A., et al. 1996. The snRNP core assembly pathway: identification of stable core protein heteromeric complexes and an snRNP subcore particle *in vitro*. *EMBO J.* 15: 2256-2269.
7. Brahms, H., et al. 2000. The C-terminal RG dipeptide repeats of the spliceosomal Sm proteins D1 and D3 contain symmetrical dimethylarginines, which form a major B-cell epitope for anti-Sm autoantibodies. *J. Biol. Chem.* 275: 17122-17129.
8. Zieve, G.W. and Khusial, P.R. 2003. The anti-Sm immune response in autoimmunity and cell biology. *Autoimmun. Rev.* 2: 235-240.
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CHROMOSOMAL LOCATION

Genetic locus: SNRPD2 (human) mapping to 19q13.32; Snrpd2 (mouse) mapping to 7 A3.

STORAGE

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

SOURCE

Sm D2 (E-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Sm D2 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-240900 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Sm D2 (E-14) is recommended for detection of Sm D2 of human, mouse and rat origin and Snrpd2 of rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with Sm D1 or Sm D3.

Sm D2 (E-14) is also recommended for detection of Sm D2 in additional species, including equine, canine and porcine.

Suitable for use as control antibody for Sm D2 siRNA (h): sc-97801, Sm D2 siRNA (m): sc-153612, Sm D2 shRNA Plasmid (h): sc-97801-SH, Sm D2 shRNA Plasmid (m): sc-153612-SH, Sm D2 shRNA (h) Lentiviral Particles: sc-97801-V and Sm D2 shRNA (m) Lentiviral Particles: sc-153612-V.

Molecular Weight of Sm D2: 17 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

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