SANTA CRUZ BIOTECHNOLOGY, INC.

spectrin β IV (D-7): sc-514744

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Spectrin, an Actin binding protein that is a major component of the cytoskeletal superstructure of the erythrocyte plasma membrane, is essential in determining the properties of the membrane including its shape and deformability. Spectrins function as membrane organizers and stabilizers, composed of nonhomologous α and β chains, which aggregate side-to-side in an antiparallel fashion to form dimers, tetramers, and higher polymers. The spectrin tetramers in erythrocytes act as barriers to lateral diffusion, but spectrin dimers seem to lack this function. Spectrin β IV is a non-erythrocytic member of the β-spectrin family. It is expressed in brain and pancreatic islets and localizes to the nuclear matrix, cytoplasmic vesicles and PML nuclear bodies. Spectrin β IV is a 2,564 amino acid protein with four isoforms due to alternative splicing events.

REFERENCES

1. Speicher, D.W. 1986. The present status of erythrocyte spectrin structure: the 106-residue repetitive structure is a basic feature of an entire class of proteins. J. Cell. Biochem. 30: 245-258.
2. Gardner, K. and Bennett, V. 1987. Modulation of spectrin-Actin assembly by erythrocyte adducin. Nature 328: 359-362.
3. Coleman, T.R., et al. 1989. Functional diversity among spectrin isoforms. Cell Motil. Cytoskeleton 12: 225-247.
5. Saxton, M.J. 1989. The spectrin network as a barrier to lateral diffusion in erythrocytes. A percolation analysis. Biophys. J. 55: 21-28.
4. Kennedy, S.P., et al. 1994. A partial structural repeat forms the heterodimer self-association site of all β-spectrins. J. Biol. Chem. 269: 11400-11408.
6. Nagase, T., et al. 2000. Prediction of the coding sequences of unidentified human genes. XVIII. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 7: 273-281.
7. Tse, W.T., et al. 2001. A new spectrin, β IV, has a major truncated isoform that associates with promyelocytic leukemia protein nuclear bodies and the nuclear matrix. J. Biol. Chem. 276: 23974-23985.

CHROMOSOMAL LOCATION

Genetic locus: SPTBN4 (human) mapping to 19q13.2; Sptbn4 (mouse) mapping to 7 A3.

SOURCE

spectrin β IV (D-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2351-2369 near the C-terminus of spectrin β IV of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-514744 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

spectrin β IV (D-7) is recommended for detection of spectrin β IV isoforms 1 and 3 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 spectrin β IV siRNA (h): sc-97805, spectrin β IV siRNA (m): sc-153737, spectrin β IV shRNA Plasmid (h): sc-97805-SH, spectrin β IV shRNA Plasmid (m): sc-153737-SH, spectrin β IV shRNA (h) Lentiviral Particles: sc-97805-V and spectrin β IV shRNA (m) Lentiviral Particles: sc-153737-V.

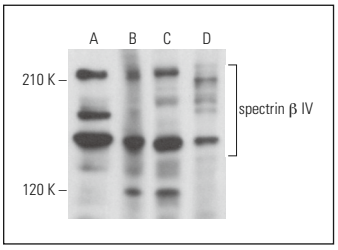
Molecular Weight of spectrin β IV: 289 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411, Jurkat whole cell lysate: sc-2204 or PANC-1 whole cell lysate: sc-364380.

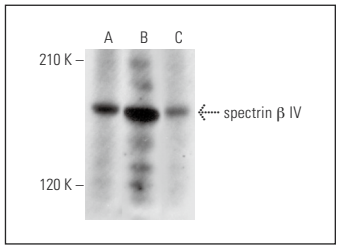
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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



spectrin β IV (D-7): sc-514744. Western blot analysis of spectrin β IV expression in Jurkat (**A**), SK-N-MC (**B**), Neuro-2A (**C**) and C6 (**D**) whole cell lysates.



spectrin β IV (D-7): sc-514744. Western blot analysis of spectrin β IV expression in U-87 MG (**A**), Jurkat (**B**) and PANC-1 (**C**) whole cell lysates.

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.

PROTOCOLS

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