

spectrin β I (VD4): sc-53901

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 non-homologous α and β chains, which aggregate side-to-side in an antiparallel fashion to form dimers, tetramers and higher polymers. Spectrin α I and spectrin β I are present in erythrocytes, whereas spectrin α II (also designated fodrin α) and spectrin β II (also designated fodrin β) are present in other somatic cells. The spectrin tetramers in erythrocytes act as barriers to lateral diffusion, but spectrin dimers seem to lack this function. Activation of calpain results in the breakdown of spectrin α II, a neuronal cytoskeleton protein.

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. Coelman, T.R., et al. 1989. Functional diversity among spectrin isoforms. *Cell Motil. Cytoskeleton* 12: 225-247.
4. Saxton, M.J. 1989. The spectrin network as a barrier to lateral diffusion in erythrocytes. A percolation analysis. *Biophys. J.* 55: 21-28.
5. Fowler, V.M. and Adam, E.J. 1992. Spectrin redistributes to the cytosol and is phosphorylated during mitosis in cultured cells. *J. Cell Biol.* 119: 1559-1572.
6. 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.

CHROMOSOMAL LOCATION

Genetic locus: SPTB (human) mapping to 14q23.3; Sptb (mouse) mapping to 12 C3.

SOURCE

spectrin β I (VD4) is a mouse monoclonal antibody raised against repeats 5/6 of purified erythrocyte spectrin β I of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} 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.

PROTOCOLS

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

APPLICATIONS

spectrin β I (VD4) is recommended for detection of spectrin β I of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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 spectrin β I siRNA (h): sc-36547, spectrin β I siRNA (m): sc-36548, spectrin β I shRNA Plasmid (h): sc-36547-SH, spectrin β I shRNA Plasmid (m): sc-36548-SH, spectrin β I shRNA (h) Lentiviral Particles: sc-36547-V and spectrin β I shRNA (m) Lentiviral Particles: sc-36548-V.

Molecular Weight (predicted) of spectrin β I: 246 kDa.

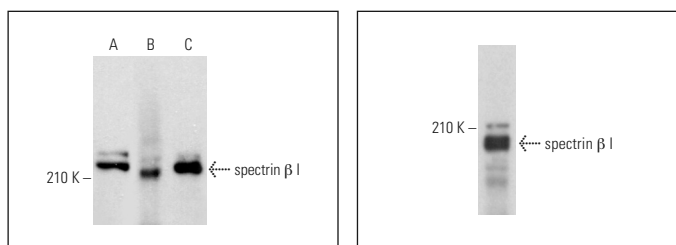
Molecular Weight (observed) of spectrin β I: 188-277 kDa.

Positive Controls: mouse skeletal muscle extract: sc-364250, TF-1 cell lysate: sc-2412 or rat heart extract: sc-2393.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 I (VD4): sc-53901. Western blot analysis of spectrin β I expression in TF-1 whole cell lysate (A) and human cerebellum (B) and rat heart (C) tissue extracts.

spectrin β I (VD4): sc-53901. Western blot analysis of spectrin β I expression in mouse skeletal muscle tissue extract.

SELECT PRODUCT CITATIONS

1. Minetti, G., et al. 2020. Membrane rearrangements in the maturation of circulating human reticulocytes. *Front. Physiol.* 11: 215.
2. Tan, M.S.Y., et al. 2021. Autocatalytic activation of a malarial egress protease is druggable and requires a protein cofactor. *EMBO J.* 40: e107226.

RESEARCH USE

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