SANTA CRUZ BIOTECHNOLOGY, INC.

spectrin β I (B-1): sc-374309

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. 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.

REFERENCE

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.

CHROMOSOMAL LOCATION

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

SOURCE

spectrin β I (B-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2111-2137 at the C-terminus of spectrin β I of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

spectrin β I (B-1) is available conjugated to agarose (sc-374309 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-374309 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374309 PE), fluorescein (sc-374309 FITC), Alexa Fluor® 488 (sc-374309 AF488), Alexa Fluor® 546 (sc-374309 AF546), Alexa Fluor® 594 (sc-374309 AF594) or Alexa Fluor® 647 (sc-374309 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374309 AF680) or Alexa Fluor® 790 (sc-374309 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-374309 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

spectrin β I (B-1) is recommended for detection of spectrin β I 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).

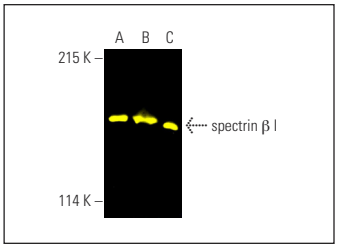
Suitable for use as control antibody for spectrin β I siRNA (h): sc-36547, spectrin β I siRNA (m): sc-36548, spectrin β I shRNA Plasmid (h): sc-36547-SH, spectrin β I shRNA Plasmid (m): sc-36548-SH, spectrin β I shRNA (h) Lentiviral Particles: sc-36547-V and spectrin β I shRNA (m) Lentiviral Particles: sc-36548-V.

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

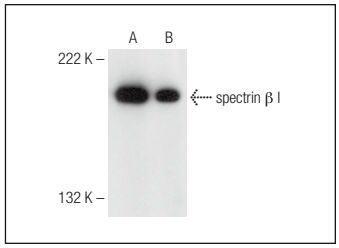
Molecular Weight (observed) of spectrin β I: 188-277 kDa.

Positive Controls: HEL 92.1.7 cell lysate: sc-2270, rat heart extract: sc-2393 or K-562 whole cell lysate: sc-2203.

DATA



spectrin β I (B-1) Alexa Fluor® 488: sc-374309 AF488. Direct fluorescent western blot analysis of spectrin β I expression in HEL 92.1.7 (**A**), K-562 (**B**) and TF-1 (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



spectrin β I (B-1): sc-374309. Western blot analysis of spectrin β I expression in rat heart tissue extract (**A**) and HEL 92.1.7 whole cell lysate (**B**).

SELECT PRODUCT CITATIONS

1. Prasad, R., et al. 2012. Expression, characterization, and cellular localization of knowpains, papain-like cysteine proteases of the *Plasmodium knowlesi* malaria parasite. PLoS ONE 7: e51619.
2. Salcedo-Sicilia, L., et al. 2013. β III spectrin regulates the structural integrity and the secretory protein transport of the Golgi complex. J. Biol. Chem. 288: 2157-2166.
3. Mukherjee, K., et al. 2021. EKLF/KLF1 expression defines a unique macrophage subset during mouse erythropoiesis. Elife 10: e61070.

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.