

# spectrin $\beta$ IV (F-5): sc-398506

## 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  $\alpha$  and  $\beta$  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  $\beta$  IV is a non-erythrocytic member of the  $\beta$ -spectrin family. It is expressed in brain and pancreatic islets and localizes to the nuclear matrix, cytoplasmic vesicles and PML nuclear bodies. Spectrin  $\beta$  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.
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. Kennedy, S.P., et al. 1994. A partial structural repeat forms the heterodimer self-association site of all  $\beta$ -spectrins. *J. Biol. Chem.* 269: 11400-11408.

## CHROMOSOMAL LOCATION

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

## SOURCE

spectrin  $\beta$  IV (F-5) is a mouse monoclonal antibody raised against amino acids 1661-1745 mapping within an internal region of spectrin  $\beta$  IV of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

spectrin  $\beta$  IV (F-5) is available conjugated to agarose (sc-398506 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-398506 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398506 PE), fluorescein (sc-398506 FITC), Alexa Fluor<sup>®</sup> 488 (sc-398506 AF488), Alexa Fluor<sup>®</sup> 546 (sc-398506 AF546), Alexa Fluor<sup>®</sup> 594 (sc-398506 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-398506 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-398506 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-398506 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

spectrin  $\beta$  IV (F-5) is recommended for detection of spectrin  $\beta$  IV isoforms 1, 3 and 4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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  $\beta$  IV siRNA (h): sc-97805, spectrin  $\beta$  IV siRNA (m): sc-153737, spectrin  $\beta$  IV shRNA Plasmid (h): sc-97805-SH, spectrin  $\beta$  IV shRNA Plasmid (m): sc-153737-SH, spectrin  $\beta$  IV shRNA (h) Lentiviral Particles: sc-97805-V and spectrin  $\beta$  IV shRNA (m) Lentiviral Particles: sc-153737-V.

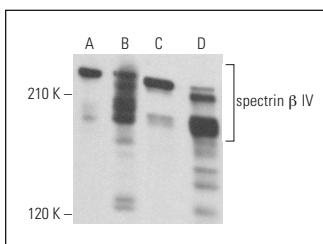
Molecular Weight of spectrin  $\beta$  IV: 289 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, SK-N-MC cell lysate: sc-2237 or Caki-1 cell lysate: sc-2224.

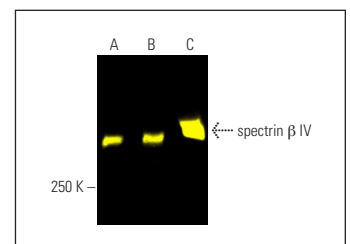
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



spectrin  $\beta$  IV (F-5): sc-398506. Western blot analysis of spectrin  $\beta$  IV expression in SK-N-MC (A), RD (B), Neuro-2A (C) and C6 (D) whole cell lysates.



spectrin  $\beta$  IV (F-5) Alexa Fluor<sup>®</sup> 488: sc-398506 AF488. Direct fluorescent western blot analysis of spectrin  $\beta$  IV expression in Caki-1 (A), ACHN (B) and Jurkat (C) whole cell lysates. Blocked with UltraCruz<sup>®</sup> Blocking Reagent: sc-516214.

## 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.