

cleaved spectrin α II (h1186): sc-23464

BACKGROUND

Spectrin (also designated fodrin α) is an actin binding protein and an ubiquitous heterodimeric scaffolding protein that stabilizes membranes and organizes protein and lipid microdomains on both the plasma membrane and intracellular organelles. Spectrins function as membrane organizers by forming dimers, tetramers and higher polymers. Calpain cleavage of spectrin, activated by calcium and calmodulin contributes to synaptic remodeling, receptor-mediated endocytosis, apoptosis and the response of the renal epithelial cell to ischemic injury. Phosphorylation of spectrin α II tyrosine residue 1176 by c-Src reduces its susceptibility to cleavage by μ -calpain. Therefore, the spectrin skeleton acts as a convergence point between kinase/phosphatase and calcium-mediated signaling cascades. Calpain-generated cleavage of spectrin α II results in a 150 and 145 kDa fragment.

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., et al. 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. Cytoskel.* 12: 225-247.
4. Rajgopal, Y., et al. 2002. Calpain activation and α -spectrin cleavage in rat brain by ethanol. *Neurosci. Lett.* 321: 187-191.
5. Nicolas, G., et al. 2002. Tyrosine phosphorylation regulates spectrin α II cleavage by calpain. *Mol. Cell. Biol.* 22: 3527-3536.
6. Nedrelow, J.H., et al. 2003. c-Src binds α II spectrin's Src homology 3 (SH3) domain and blocks Calpain susceptibility by phosphorylating Tyr 1176. *J. Biol. Chem.* 278: 7735-7741.

CHROMOSOMAL LOCATION

Genetic locus: SPTAN1 (human) mapping to 9q34.11.

SOURCE

cleaved spectrin α II (h1186) is an affinity purified goat polyclonal raised against a short amino acid sequence containing the neopeptide at Ser 1186 of spectrin α II of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-23464 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

cleaved spectrin α II (h1186) is recommended for detection of the 150 kDa C-terminal Asp 1185 cleaved spectrin α II of human 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 120 kDa C-terminal fragment or full length spectrin α -II.

Molecular Weight of cleaved spectrin α II: 150 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.

SELECT PRODUCT CITATIONS

1. Cowan, C.M., et al. 2008. Polyglutamine-modulated striatal calpain activity in YAC transgenic Huntington disease mouse model: impact on NMDA receptor function and toxicity. *J. Neurosci.* 28: 12725-12735
2. Rosengren, V., et al. 2012. Thapsigargin down-regulates protein levels of GRP78/BiP in INS-1E cells. *J. Cell. Biochem.* 113: 1635-1644.

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.