SANTA CRUZ BIOTECHNOLOGY, INC.

14-3-3 β/ε/ζ (3C8): sc-59420

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

14-3-3 proteins regulate many cellular processes relevant to cancer biology, notably apoptosis, mitogenic signaling and cell-cycle checkpoints. Seven isoforms comprise this family of signaling intermediates, denoted 14-3-3 β, γ, ε, ζ, η, θ and σ. 14-3-3 proteins form dimers that present two binding sites for ligand proteins, thereby bringing together two proteins that may not otherwise associate. These ligands largely share a 14-3-3 consensus binding motif and exhibit serine/threonine phosphorylation. 14-3-3 proteins function in broad regulation of these ligand proteins, by cytoplasmic sequestration, occupation of interaction domains and import/export sequences, prevention of degradation, activation/repression of enzymatic activity and facilitation of protein modification, and thus loss of expression contributes to a vast array of pathogenic cellular activities.

REFERENCES

1. Morrison, D., et al. 1994. 14-3-3: modulators of signaling proteins? Science 266: 56-57.
2. Shumway, S.D., et al. 2003. 14-3-3β binds to and negatively regulates the tuberous sclerosis complex 2 (TSC2) tumor suppressor gene product, tuberin. J. Biol. Chem. 278: 2089-2092.
3. Cavet, M.E., et al. 2003. 14-3-3β is a p90 ribosomal S6 kinase (RSK) isoform 1-binding protein that negatively regulates RSK kinase activity. J. Biol. Chem. 278: 18376-18383.
4. Hermeking, H., et al. 2003. The 14-3-3 cancer connection. Nat. Rev. Cancer 3: 931-943.
5. Sugiyama, A., et al. 2003. Forced expression of antisense 14-3-3β RNA suppresses tumor cell growth *in vitro* and *in vivo*. Carcinogenesis 24: 1549-1559.
6. Uchida, S., et al. 2004. Binding of 14-3-3β but not 14-3-3σ controls the cytoplasmic localization of CDC25B: binding site preferences of 14-3-3 subtypes and the subcellular localization of CDC25B. J. Cell. Sci. 117: 3011-3020.
7. Zheng, Q., et al. 2004. 14-3-3β binds to big mitogen-activated protein kinase 1 (BMK1/ERK5) and regulates BMK1 function. J. Biol. Chem. 279: 8787-8791.

CHROMOSOMAL LOCATION

Genetic locus: YWHAB (human) mapping to 20q13.1, YWHAE (human) mapping to 17p13.3, YWHAZ (human) mapping to 8q23.1; Ywhab (mouse) mapping to 2 H3, Ywhae (mouse) mapping to 11 B2, Ywhaz (mouse) mapping to 15 B3.1.

SOURCE

14-3-3 β/ε/ζ (3C8) is a mouse monoclonal antibody raised against 14-3-3β fusion protein of human origin.

This product has been manufactured by MBL International Corporation.

RESEARCH USE

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

PRODUCT

Each vial contains 100 µg IgG_{2b} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

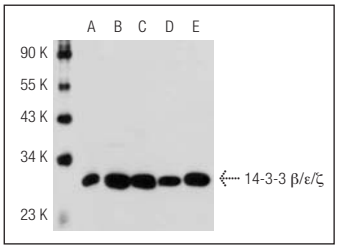
APPLICATIONS

14-3-3 β/ε/ζ (3C8) is recommended for detection of 14-3-3 γ, 14-3-3 ε, and 14-3-3 ζ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

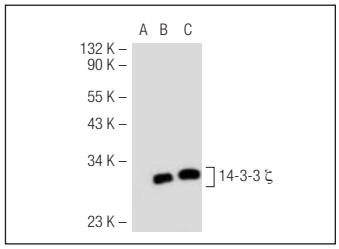
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



14-3-3 β/ε/ζ (3C8): sc-59420. Western blot analysis of 14-3-3 β/ε/ζ expression in 293T (**A**), KNRK (**B**), SW480 (**C**), Caco-2 (**D**) and NIH/3T3 (**E**) whole cell lysates.



14-3-3 β/ε/ζ (3C8): sc-59420. Western blot analysis of 14-3-3 ζ expression in non-transfected 293T: sc-117752 (**A**), human 14-3-3 ζ transfected 293T: sc-111414 (**B**) and KNRK (**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.

PROTOCOLS

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