SANTA CRUZ BIOTECHNOLOGY, INC.

14-3-3 β (4E1): sc-59417

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. Sugiyama, A., et al. 2003. Forced expression of antisense 14-3-3 β RNA suppresses tumor cell growth *in vitro* and *in vivo*. Carcinogenesis 24: 1549-1559. 1
3. Shumway, S.D., et al. 2003. 14-3-3 β binds to and negatively regulates the tuberous sclerosis complex 2 (TSC2) tumor suppressor gene product, tuberin. J. Biol. Chem. 278: 2089-2092.
2. Cavet, M.E., et al. 2003. 14-3-3 β 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. 2003. The 14-3-3 cancer connection. Nat. Rev. Cancer 3: 931-943.
5. Uchida, S., et al. 2004. Binding of 14-3-3 β but not 14-3-3 σ 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.
6. Zheng, Q., et al. 2004. 14-3-3 β 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; Ywhab (mouse) mapping to 2 H3.

SOURCE

14-3-3 β (4E1) is a mouse monoclonal antibody raised against recombinant 14-3-3 β of rat origin.

This product has been manufactured by MBL International Corporation.

PRODUCT

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

RESEARCH USE

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

APPLICATIONS

14-3-3 β (4E1) is recommended for detection of 14-3-3 β of mouse and rat 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)].

Suitable for use as control antibody for 14-3-3 β siRNA (m): sc-29187.

Molecular Weight of 14-3-3 β: 30 kDa.

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).

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.