SANTA CRUZ BIOTECHNOLOGY, INC.

14-3-3 ζ (C-16): sc-1019

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. 1994. 14-3-3: modulators of signaling proteins? Science 266: 56-57.
2. Muratake, T., et al. 1996. Structural organization and chromosomal assignment of the human 14-3-3 β chain gene (YWHAH). Genomics 36: 63-69.

SOURCE

14-3-3 ζ (C-16) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within a relatively divergent domain of 14-3-3 ζ of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-1019 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

14-3-3 ζ (C-16) is recommended for detection of 14-3-3 ζ and, to a lesser extent, 14-3-3 β and σ of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:25, dilution range 1:25-1:250), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:25, dilution range 1:25-1:250) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

14-3-3 ζ (C-16) is also recommended for detection of 14-3-3 ζ and, to a lesser extent, 14-3-3 β and σ in additional species, including equine, bovine, porcine, ovine, canine and avian.

Molecular Weight of 14-3-3 ζ: 30 kDa.

Positive Controls: 14-3-3 ζ (h3): 293T Lysate: sc-111573, NIH/3T3 whole cell lysate: sc-2210 or HeLa whole cell lysate: sc-2200.

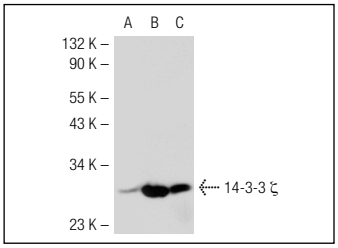
RESEARCH USE

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

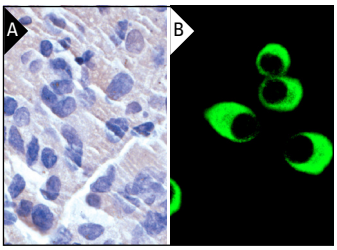
STORAGE

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

DATA



14-3-3 ζ (C-16): sc-1019. Western blot analysis of 14-3-3 ζ expression in non-transfected 293T: sc-117752 (**A**), human 14-3-3 ζ transfected 293T: sc-111573 (**B**) and HeLa (**C**) whole cell lysates.



14-3-3 ζ (C-16): sc-1019. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast tumor showing cytoplasmic staining (**A**). Immunofluorescence staining of methanol-fixed KNRK cells showing cytoplasmic staining (**B**).

SELECT PRODUCT CITATIONS

1. Muslin, A.J., et al. 2000. 14-3-3 proteins block apoptosis and differentially regulate MAPK cascades. EMBO J. 19: 349-358.
2. Liang, S., et al. 2009. Isoform-specific expression and characterization of 14-3-3 proteins in human glioma tissues discovered by stable isotope labeling with amino acids in cell culture-based proteomic analysis. Proteomics Clin. Appl. 3: 743-753.
3. Du, Y., et al. 2009. Neuroprotection of preconditioning against ischemic brain injury in rat hippocampus through inhibition of the assembly of GluR6-PSD95-mixed lineage kinase 3 signaling module via nuclear and non-nuclear pathways. Neuroscience 161: 370-380.
4. Larriba, M.J., et al. 2010. Novel snail1 target proteins in human colon cancer identified by proteomic analysis. PLoS ONE 5: e10221.
5. Drobic, B., et al. 2010. Promoter chromatin remodeling of immediate-early genes is mediated through H3 phosphorylation at either serine 28 or 10 by the MSK1 multi-protein complex. Nucleic Acids Res. 38: 3196-3208.
6. Nantajit, D., et al. 2010. Cyclin B1/Cdk1 phosphorylation of mitochondrial p53 induces anti-apoptotic response. PLoS ONE 5: e12341.
7. Hong, H.Y., et al. 2010. 14-3-3 sigma and 14-3-3 ζ plays an opposite role in cell growth inhibition mediated by transforming growth factor-β 1. Mol. Cells 29: 305-309.
8. Zhong, J., et al. 2011. The interactome of a PTB domain-containing adapter protein, Odin, revealed by SILAC. J. Proteomics 74: 294-303.