

14-3-3 (12): sc-135816

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

- Morrison, D. 1994. 14-3-3: modulators of signaling proteins? *Science* 266: 56-57.
- Muratake, T., et al. 1996. Structural organization and chromosomal assignment of the human 14-3-3 β chain gene (YWHAH). *Genomics* 36: 63-69.
- Yaffe, M.B., et al. 1997. The structural basis for 14-3-3 phosphopeptide binding specificity. *Cell* 91: 961-971.
- Megidish, T., et al. 1998. A novel sphingosine-dependent protein kinase (SDK1) specifically phosphorylates certain isoforms of 14-3-3 protein. *J. Biol. Chem.* 273: 21834-21845.
- Lim, R., et al. 2002. MADM, a novel adaptor protein that mediates phosphorylation of the 14-3-3 binding site of myeloid leukemia factor 1. *J. Biol. Chem.* 277: 40997-41008.
- Yu, T., et al. 2002. The 4.1/Ezrin/Radixin/Moesin domain of the DAL-1/Protein 4.1B tumour suppressor interacts with 14-3-3 proteins. *Biochem. J.* 365: 783-789.
- Hermeking, H. 2003. The 14-3-3 cancer connection. *Nat. Rev. Cancer* 3: 931-943.
- Paul, A.L., et al. 2005. Isoform-specific subcellular localization among 14-3-3 proteins in *Arabidopsis* seems to be driven by client interactions. *Mol. Biol. Cell* 16: 1735-1743.

SOURCE

14-3-3 (12) is a mouse monoclonal antibody raised against recombinant 14-3-3 of human origin.

PRODUCT

Each vial contains 50 μ g IgM in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

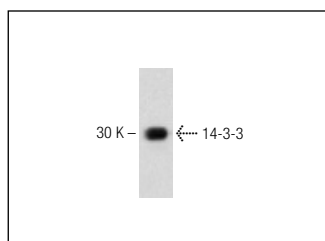
APPLICATIONS

14-3-3 (12) is recommended for detection of 14-3-3 subunits β , γ , η , θ , and ζ of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); non-cross-reactive with 14-3-3 subunits ϵ and σ .

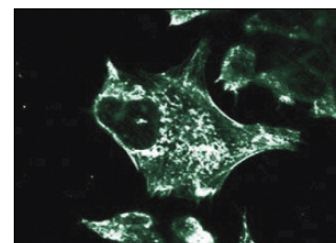
Molecular Weight of 14-3-3: 30 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, WEHI-231 whole cell lysate: sc-2213 or NIH/3T3 whole cell lysate: sc-2210.

DATA



14-3-3 (12): sc-135816. Western blot analysis of 14-3-3 expression in HeLa whole cell lysate.



14-3-3 (12): sc-135816. Immunofluorescence staining of SKN cells showing cytoplasmic staining.

SELECT PRODUCT CITATIONS

- Serrano, I., et al. 2013. Inactivation of the Hippo tumour suppressor pathway by integrin-linked kinase. *Nat. Commun.* 4: 2976.
- Brennan, G.P., et al. 2013. Transgenic overexpression of 14-3-3 ζ protects hippocampus against endoplasmic reticulum stress and status epilepticus *in vivo*. *PLoS ONE* 8: e54491.

RESEARCH USE

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

PROTOCOLS

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



See **pan 14-3-3 (B-8): sc-133233** for pan 14-3-3 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor[®] 488, 546, 594, 647, 680 and 790.