

14-3-3 θ (h2): 293T Lysate: sc-116633

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., Hayashi, S., Ichikawa, T., Kumanishi, T., Ichimura, Y., Kuwano, R., Isobe, T., Wang, Y., Minoshima, S., Shimizu, N. and Takahashi, Y. 1996. Structural organization and chromosomal assignment of the human 14-3-3 β chain gene (YWHAH). *Genomics* 36: 63-69.
- Yaffe, M.B., Rittinger, K., Volinia, S., Caron, P.R., Aitken, A., Leffers, H., Gambin, S.J., Smerdon, S.J. and Cantley, L.C. 1997. The structural basis for 14-3-3 phosphopeptide binding specificity. *Cell* 91: 961-971.
- Megidish, T., Cooper, J., Zhang, L., Fu, H. and Hakomori, S. 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., Winteringham, L.N., Williams, J.H., McCulloch, R.K., Ingley, E., Tiao, J.Y., Lalonde, J.P., Tsai, S., Tilbrook, P.A., Sun, Y., Wu, X., Morris, S.W. and Klinken S.P. 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., Robb, V.A., Singh, V., Gutmann, D.H. and Newsham, I.F. 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., Sehnke, P.C. and Ferl, R.J. 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.

CHROMOSOMAL LOCATION

Genetic locus: YWHAQ (human) mapping to 2p25.1.

PRODUCT

14-3-3 θ (h): 293T Lysate represents a lysate of human 14-3-3 θ transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

14-3-3 θ (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive 14-3-3 θ antibodies. Recommended use: 10-20 μ l per lane.

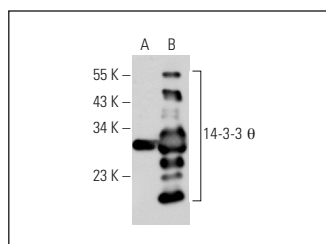
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

14-3-3 θ (5J20): sc-69720 is recommended as a positive control antibody for Western Blot analysis of enhanced human 14-3-3 θ expression in 14-3-3 θ transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

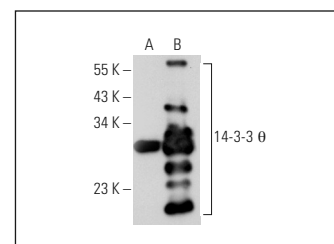
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



14-3-3 θ (3B9): sc-59414. Western blot analysis of 14-3-3 θ expression in non-transfected: sc-117752 (A) and human 14-3-3 θ transfected: sc-116633 (B) 293T whole cell lysates.



14-3-3 θ (5J20): sc-69720. Western blot analysis of 14-3-3 θ expression in non-transfected: sc-117752 (A) and human 14-3-3 θ transfected: sc-116633 (B) 293T whole cell lysates.

STORAGE

Store at -20^o C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

PROTOCOLS

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