

# 14-3-3 (pan) Antibody



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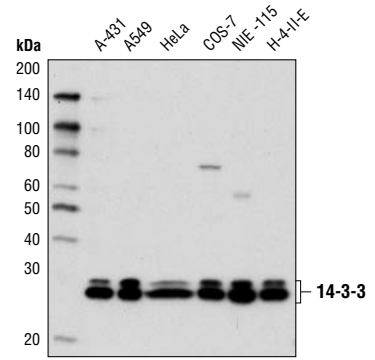
**For Research Use Only. Not For Use In Diagnostic Procedures.**

| Applications    | Species Cross-Reactivity*                    | Molecular Wt. | Source   |
|-----------------|--|---------------|----------|
| W<br>Endogenous | H, M, R, Mk, B, Pg,<br>(C, Dm, X, Z, Sc, Ce) | 27–29 kDa     | Rabbit** |

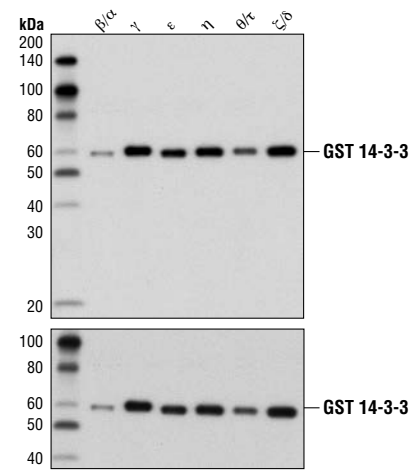
**Background:** The 14-3-3 family of proteins plays a key regulatory role in signal transduction, checkpoint control, apoptotic and nutrient-sensing pathways (1,2). 14-3-3 proteins are highly conserved and ubiquitously expressed. There are at least seven isoforms,  $\beta$ ,  $\gamma$ ,  $\epsilon$ ,  $\alpha$ ,  $\zeta$ ,  $\tau$  and  $\eta$  that have been identified in mammals. The initially described  $\alpha$  and  $\delta$  isoforms are confirmed to be phosphorylated forms of  $\beta$  and  $\zeta$ , respectively (3). Through their amino-terminal  $\alpha$  helical region, 14-3-3 proteins form homo- or heterodimers that interact with a wide variety of proteins: transcription factors, metabolic enzymes, cytoskeletal proteins, kinases, phosphatases and other signaling molecules (3,4). The interaction of 14-3-3 proteins with their targets is primarily through a phospho-Ser/Thr motif. However, binding to divergent phospho-Ser/Thr motifs, as well as phosphorylation independent interactions has been observed (4). 14-3-3 binding masks specific sequences of the target protein, and therefore, modulates target protein localization, phosphorylation state, stability and molecular interactions (1-4). 14-3-3 proteins may also induce target protein conformational changes which modify target protein function (4,5). Distinct temporal and spatial expression patterns of 14-3-3 isoforms have been observed in development and in acute response to extracellular signals and drugs, suggesting that 14-3-3 isoforms may perform different functions despite their sequence similarities (4). Several studies suggest that 14-3-3 isoforms are differentially regulated in cancer and neurological syndromes (2,3).

**Specificity/Sensitivity:** 14-3-3 (pan) Antibody recognizes endogenous levels of total 14-3-3 protein. This antibody detects all known isoforms of mammalian 14-3-3 proteins ( $\beta/\alpha$ ,  $\gamma$ ,  $\epsilon$ ,  $\eta$ ,  $\zeta/\delta$ ,  $\theta/\tau$  and  $\sigma$ ).

**Source/Purification:** Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Met223 of human 14-3-3 $\gamma$  protein. Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of extracts from various cell lines using 14-3-3 (pan) Antibody.



Western blot analysis of purified, recombinant, GST-tagged 14-3-3 isoforms using 14-3-3 (pan) Antibody (upper) or GST (91G1) Rabbit mAb #2635, (lower) demonstrating isoform cross-reactivity.

Entrez-Gene ID #7532  
Swiss-Prot Acc. #P61981

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100  $\mu$ g/ml BSA and 50% glycerol. Store at  $-20^{\circ}\text{C}$ . Do not aliquot the antibody.

\*Species cross-reactivity is determined by western blot.

\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**

Western blotting 1:1000

For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.

**Background References:**

- (1) Muslin, A.J. and Xing, H. (2000) *Cell Signal* 12, 703-9.
- (2) Mackintosh, C. (2004) *Biochem. J.* 381, 329-42.
- (3) Dougherty, M.K. and Morrison, D.K. (2004) *J. Cell Sci.* 117, 1875-84.
- (4) Yaffe, M.B. (2002) *FEBS Lett.* 513, 53-7.
- (5) Bridges, D. and Moorhead, G.B. (2004) *Sci. STKE* 2004, re10.

**IMPORTANT:** For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.