Store at -20°C

Phospho-YB1 (Ser102) (C34A2) Rabbit mAb

#2900

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Entrez-Gene ID #4904
UniProt ID #P67809

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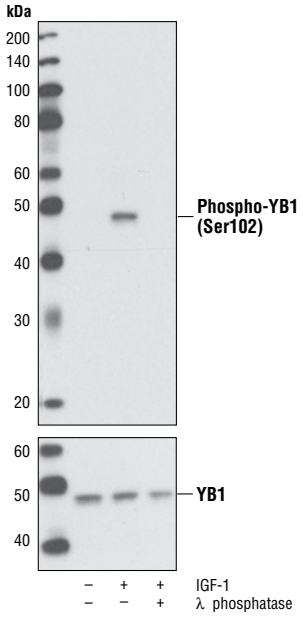
Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W Endogenous	H, M, Mk, (R, B)	49 kDa	Rabbit IgG**

Background: The Y-box binding protein 1 (YB1) belongs to a family of evolutionarily conserved, multifunctional Y-box proteins that bind single-stranded DNA and RNA and function as regulators of transcription, RNA metabolism, and protein synthesis (1). YB1 binds to Y-box sequences (TAACC) found in multiple gene promoters and can positively or negatively regulate transcription. YB1 activates genes associated with proliferation and cancer, such as cyclin A, cyclin B1, matrix metalloproteinase-2 (MMP-2), and the multi-drug resistance 1 (MDR1) gene (2-4). YB1 represses genes associated with cell death, including the Fas cell death-associated receptor and the p53 tumor suppressor gene (5-7). It also interacts with the RNA-splicing factor SRp30c and stabilizes interleukin-2 (IL-2) mRNA upon induction of T lymphocytes by IL-2 (8,9). The majority of YB1 protein localizes to the cytoplasm, with a minor pool found in the nucleus; however, nuclear localization appears to be critical for its role in promoting proliferation. Nuclear translocation is cell cycle regulated, with YB1 protein accumulating in the nucleus during G1/S phase (2). In addition, nuclear translocation is induced in response to extracellular stimuli such as hyperthermia and UV irradiation, or treatment of cells with thrombin, interferons, or insulin-like growth factor (IGF-I) (2,10). Treatment of the MCF7 breast cancer cell line with IGF-I results in Akt-mediated phosphorylation of YB1 at Ser102, which is required for nuclear translocation of YB1 and its ability to promote anchorage-independent growth (10). Research studies have shown that YB1 is overexpressed in many malignant tissues, including breast cancer, non-small cell lung carcinoma, ovarian adenocarcinomas, human osteosarcomas, colorectal carcinomas, and malignant melanomas. Investigators have shown that nuclear YB1 expression correlates with high levels of proliferation, drug resistance, and poor tumor prognosis (2,7,10).

Specificity/Sensitivity: Phospho-YB1 (Ser102) (C34A2) Rabbit mAb detects endogenous levels of YB1 protein only when phosphorylated on Ser102.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser102 of the human YB1 protein.



Western blot analysis of extracts from MCF-7 cells, serum-starved overnight and then either left untreated or treated with IGF-1 (50 ng/ml) for one hour, using Phospho-YB1 (Ser102) (C34A2) Rabbit mAb (upper) or YB1 Antibody #2749 (lower). Further treatment of the IGF-1-treated cell extracts with λ phosphatase depleted the phospho-specific YB1 signal (upper), but not total YB1 (lower).

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°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 product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com

Background References:

(1) Matsumoto, K. and Wolffe, A.P. (1998) *Trends Cell Biol.* 8, 318-23.

(2) Jurchott, K. et al. (2003) *J. Biol. Chem.* 278, 27988-96.

(3) Mertens, P.R. et al. (1997) *J. Biol. Chem.* 272, 22905-12.

(4) Uchiumi, T. et al. (1993) *Cell Growth Differ.* 4, 147-57.

(5) Lasham, A. et al. (2000) *Gene* 252, 1-13.

(6) Lasham, A. et al. (2003) *J. Biol. Chem.* 278, 35516-23.

(7) Homer, C. et al. (2005) *Oncogene* 24, 8314-25.

(8) Raffetseder, U. et al. (2003) *J. Biol. Chem.* 278, 18241-8.

(9) Chen, C.Y. et al. (2000) *Genes Dev.* 14, 1236-48.

(10) Sutherland, B.W. et al. (2005) *Oncogene* 24, 4281-92.

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.

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