

Store at -20°C
#4202

YB1 (D299) Antibody



Cell Signaling
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Orders: 877-616-CELL (2355)
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Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB, IHC-P, IF-IC	H M R Mk	Endogenous	49	Rabbit	#P67809	4904

Product Usage Information

Application

Western Blotting
Immunohistochemistry (Paraffin)
Immunofluorescence (Immunocytochemistry)

Dilution

1:1000
1:50
1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

YB1 (D299) Antibody detects endogenous levels of total YB1 protein.

Species predicted to react based on 100% sequence homology:

Xenopus, Bovine

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to the carboxy terminus of the human YB1 protein. Antibodies are purified by protein A and peptide affinity chromatography.

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).

Background References

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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.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

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

Applications Key

WB: Western Blotting **IHC-P:** Immunohistochemistry (Paraffin)
IF-IC: Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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