SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin B1 (V143.1): sc-53235

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The Power to Question

BACKGROUND

In eukaryotic cells, mitosis is initiated following the activation of a protein kinase known variously as maturation-promoting factor, M phase specific histone kinase or M-phase kinase. This protein kinase is composed of a catalytic subunit (Cdc2), a regulatory subunit (cyclin B) and a low molecular weight subunit (p13-Suc1). The Cdc/cyclin enzyme is subject to multiple levels of control, of which the regulation of the catalytic subunit by tyrosine phosphorylation is the best understood. Tyrosine phosphorylation inhibits the Cdc2/cyclin B enzyme, and tyrosine dephosphorylation, occurring at the onset of mitosis, directly activates the pre-MPF complex. Evidence has established that B type cyclins not only act on M phase regulatory subunits of the Cdc2 protein kinase, but also activate the Cdc25A and Cdc25B endogenous tyrosine phosphatase, of which Cdc2 is the physiological substrate. The specificity of this effect is shown by the inability of either cyclin A or cyclin D1 to display any such stimulation of Cdc25A or Cdc25B.

REFERENCES

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2. Morla, A.O., et al. 1989. Reversible tyrosine phosphorylation of Cdc2: dephosphorylation accompanies activation during entry into mitosis. Cell 58: 193-203.
3. Doree, M. 1990. Control of M phase by maturation promoting factor. Curr. Opin. Cell Biol. 2: 269-273.
4. Gautier, J., et al. 1990. Cyclin is a component of maturation-promoting factor from *Xenopus*. Cell 60: 487-494.
5. Jessus, C., et al. 1990. Direct activation of Cdc2 with phosphatase: identification of $p13^{suc1}$ sensitive and insensitive steps. FEBS Lett. 266: 4-8.
6. Gautier, J. and Maller, J.L. 1991. Cyclin B in *Xenopus* oocytes: Implications for the mechanism of pre-MPF activation. EMBO J. 10: 177-182.
7. Galaktionov, K. and Beach, D. 1991. Specific activation of Cdc25 tyrosine phosphatases by B type cyclins: Evidence for multiple roles of mitotic cyclins. Cell 67: 1181-1194.
8. Minemoto, Y., et al. 2001. Characterization of adriamycin-induced G_2 arrest and its abrogation by caffeine in FL-amnion cells with or without p53. Exp. Cell Res. 262: 37-48.
9. Garner, A.P., et al. 2002. δ MEKK3:ER* activation induces a p38 α/β 2-dependent cell cycle arrest at the G_2 checkpoint. Oncogene 21: 8089-8104.

CHROMOSOMAL LOCATION

Genetic locus: CCNB1 (human) mapping to 5q13.2; Ccnb1 (mouse) mapping to 13 D1.

SOURCE

cyclin B1 (V143.1) is a mouse monoclonal antibody raised against cyclin B1 of hamster origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

cyclin B1 (V143.1) is recommended for detection of cyclin B1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

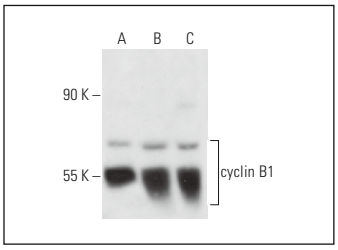
cyclin B1 (V143.1) is also recommended for detection of cyclin B1 in additional species, including hamster.

Suitable for use as control antibody for cyclin B1 siRNA (h): sc-29284, cyclin B1 siRNA (m): sc-29285, cyclin B1 shRNA Plasmid (h): sc-29284-SH, cyclin B1 shRNA Plasmid (m): sc-29285-SH, cyclin B1 shRNA (h) Lentiviral Particles: sc-29284-V and cyclin B1 shRNA (m) Lentiviral Particles: sc-29285-V.

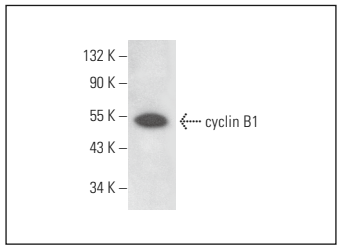
Molecular Weight of cyclin B1: 60 kDa.

Positive Controls: NIH/3T3 nuclear extract: sc-2138, M1 whole cell lysate: sc-364782 or MM-142 + PMA nuclear extract: sc-2140.

DATA



cyclin B1 (V143.1): sc-53235. Western blot analysis of cyclin B1 expression in NIH/3T3 (**A**), untreated MM-142 (**B**) and PMA treated MM-142 (**C**) nuclear extracts.



cyclin B1 (V143.1): sc-53235. Western blot analysis of cyclin B1 expression in M1 whole cell lysate.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. 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.

CONJUGATES

See **cyclin B1 (GNS1): sc-245** for cyclin B1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.