SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin B1 (V92.1): sc-53238

SANTA CRUZ BIOTECHNOLOGY

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

1. Murray, A.W. and Kirschner, M.W. 1989. Dominoes and clocks: the union of two views of the cell cycle. Science 246: 614-621.
2. Morla, A.O., Draetta, G., Beach, D. and Wang, J.Y. 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., Minshull, J., Lohka, M., Glotzer, M., Hunt, T. and Maller, J. 1990. Cyclin is a component of maturation-promoting factor from *Xenopus*. Cell 60: 487-494.
5. Jessus, C., Ducommun, B. and Beach, D. 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.

CHROMOSOMAL LOCATION

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

SOURCE

cyclin B1 (V92.1) is a mouse monoclonal antibody raised against cyclin B1 of hamster origin.

PRODUCT

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

APPLICATIONS

cyclin B1 (V92.1) is recommended for detection of cyclin B1 of mouse, rat, human and hamster 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)].

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.

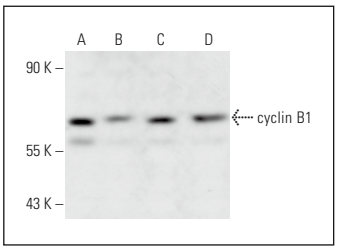
Molecular Weight of cyclin B1: 60 kDa.

Positive Controls: K-562 nuclear extract: sc-2130, K-562 whole cell lysate: sc-2203 or Jurkat nuclear extract: sc-2132.

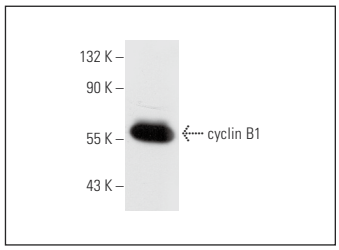
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



cyclin B1 (V92.1): sc-53238. Western blot analysis of cyclin B1 expression in K-562 (**A**), PMA induced K-562 (**B**), Jurkat (**C**) and PMA induced Jurkat (**D**) nuclear extracts.



cyclin B1 (V92.1): sc-53238. Western blot analysis of cyclin B1 expression in K-562 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.