SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin B1 (H-433): sc-752

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-Suc 1). 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., et al. 1989. Dominoes and clocks: the union of two views of the cell cycle. Science 246: 614-621.
2. Morla, A.O., et al. 1989. Reversible tyrosine phosphorylation of cdc2: dephosphorylation accompanies activation during entry into mitosis. Cell 58: 193-203.
3. Jessus, C., et al. 1990. Direct activation of cdc2 with phosphatase: identification of p13suc1 sensitive and insensitive steps. FEBS Lett. 266: 4-8.

CHROMOSOMAL LOCATION

Genetic locus: CCNB1 (human) mapping to 5q12; Ccnb1 (mouse) mapping to 13 D11

SOURCE

cyclin B1 (H-433) is a rabbit polyclonal antibody raised against amino acids 1-433 representing full length cyclin B1 of human origin.

PRODUCT

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

Available as agarose conjugate for immunoprecipitation, sc-752 AC, 500 µg/0.25 ml agarose in 1 ml.

Available as HRP conjugate for Western blotting, sc-752 HRP, 200 µg/1 ml.

Available as fluorescein (sc-752 FITC) or rhodamine (sc-752 TRITC) conjugates for use in immunofluorescence, 200 µg/1 ml.

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.

APPLICATIONS

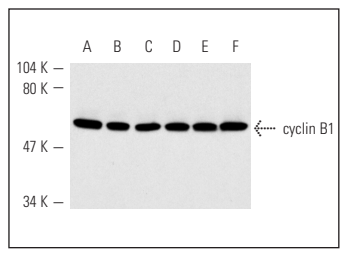
cyclin B1 (H-433) is recommended for detection of cyclin B1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1–2 µg per 100–500 µg of total protein (1 ml of cell lysate)], immunofluorescence and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and indirect flow cytometry (1 µg per 1 x 10^6 cells) using PE-conjugated goat anti-rabbit IgG: sc-3739.

Suitable for use as control antibody for cyclin B1 siRNA (h): sc-29284 and cyclin B1 siRNA (m): sc-29285.

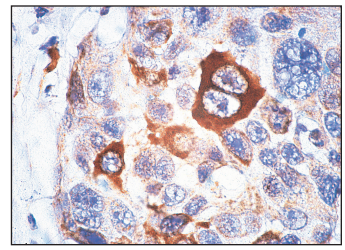
Molecular Weight of cyclin B1: 55 kDa.

Positive Controls: K-562 nuclear extract: sc-2130, K-562 + PMA nuclear extract: sc-2131 or Jurkat nuclear extract: sc-2132.

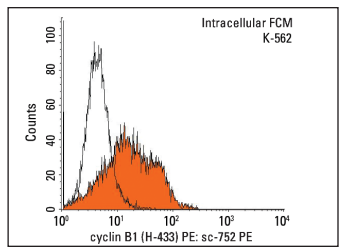
DATA



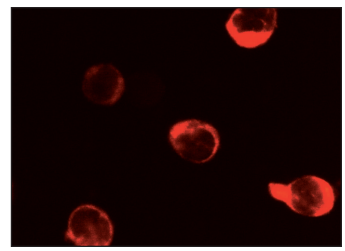
cyclin B1 (H-433): sc-752. Western blot analysis of cyclin B1 expression in untreated (**A,C,E**) and phorbol ester-induced (**B,D,F**) K-562 (**A,B**), Jurkat (**C,D**) and HeLa (**E,F**) nuclear extracts.



cyclin B1 (H-433): sc-752. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue at high magnification. Note staining of selected cells, showing cytoplasmic localization.



cyclin B1 (H-433): sc-752. Indirect, intracellular FCM analysis of fixed and permeabilized K562 cells stained with cyclin B1 (H-433), followed by PE-conjugated goat anti-rabbit IgG: sc-3739. Black line histogram represents the isotype control, normal rabbit IgG: sc-3888.



cyclin B1 (H-433): sc-752. Immunofluorescence staining of methanol-fixed K-562 cells showing cytoplasmic staining.

SELECT PRODUCT CITATIONS

1. Hiromura, K., et al. 2002. The subcellular localization of cyclin dependent kinase 2 determines the fate of mesangial cells: role in apoptosis and proliferation. Oncogene 21: 1750-1708.
2. Timms, J.F., et al. 2002. Effects of ErbB-2 overexpression on mitogenic signaling and cell cycle progression in human breast luminal epithelial cells. Oncogene 21: 6573-6586.
3. Zhang, L., et al. 2003. PAX3-FKHR transformation increases 26 S proteasome-dependent degradation of p27Kip1, a potential role for elevated Skp2 expression. J. Biol. Chem. 278: 27-36.