

cyclin B1 (GNS1): sc-245



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; 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

- Murray, A.W., et al. 1989. Dominoes and clocks: the union of two views of the cell cycle. *Science* 246: 614-621.
- Morla, A.O., et al. 1989. Reversible tyrosine phosphorylation of cdc2: dephosphorylation accompanies activation during entry into mitosis. *Cell* 58: 193-203.

CHROMOSOMAL LOCATION

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

SOURCE

cyclin B1 (GNS1) is a mouse monoclonal antibody raised against a recombinant protein corresponding to human cyclin B1.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for ChIP application, sc-245 X, 200 µg/0.1 ml.

cyclin B1 (GNS1) is available conjugated to agarose (sc-245 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-245 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-245 PE), fluorescein (sc-245 FITC), Alexa Fluor® 488 (sc-245 AF488), Alexa Fluor® 546 (sc-245 AF546), Alexa Fluor® 594 (sc-245 AF594) or Alexa Fluor® 647 (sc-245 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-245 AF680) or Alexa Fluor® 790 (sc-245 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, cyclin B1 (GNS1) is available conjugated to TRITC (sc-245 TRITC, 200 µg/ml), for IF, IHC(P) and FCM.

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STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

cyclin B1 (GNS1) 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 (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

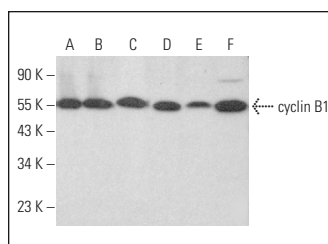
Suitable for use as control antibody for cyclin B1 siRNA (h): sc-29284, cyclin B1 siRNA (m): sc-29285, cyclin B1 shRNA Plasmid (h): sc-29284-SH, cyclin B1 shRNA Plasmid (m): sc-29285-SH, cyclin B1 shRNA (h) Lentiviral Particles: sc-29284-V and cyclin B1 shRNA (m) Lentiviral Particles: sc-29285-V.

cyclin B1 (GNS1) X TransCruz antibody is recommended for ChIP assays.

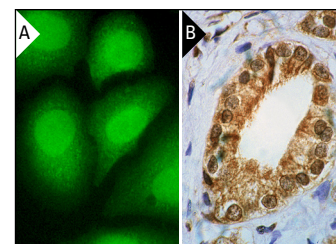
Molecular Weight of cyclin B1: 60 kDa.

Positive Controls: Daudi cell lysate: sc-2415, Jurkat nuclear extract: sc-2132 or HeLa nuclear extract: sc-2120.

DATA



cyclin B1 (GNS1): sc-245. Western blot analysis of cyclin B1 expression in Jurkat (A) and HeLa (B) nuclear extracts and Daudi (C), OVCAR-3 (D), NIH/3T3 (E) and MM-142 (F) whole cell lysates.



cyclin B1 (GNS1) Alexa Fluor® 488: sc-245 AF488. Direct immunofluorescence staining of formalin-fixed HeLa cells showing cytoplasmic and nuclear localization (A). cyclin B1 (GNS1): sc-245. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human prostate carcinoma tissue showing nuclear and cytoplasmic staining of glandular epithelia (B).

SELECT PRODUCT CITATIONS

- DeGregori, J., et al. 1995. E2F-1 accumulation bypasses a G₁ arrest resulting from the inhibition of G₁ cyclin-dependent kinase activity. *Genes Dev.* 9: 2873-2887.
- Lei, T., et al. 2018. Cyclin K regulates prereplicative complex assembly to promote mammalian cell proliferation. *Nat. Commun.* 9: 1876.
- Asai, Y., et al. 2019. Aurora B kinase activity is regulated by SET/TAF1 on Sgo2 at the inner centromere. *J. Cell Biol.* 218: 3223-3236.
- Xu, D., et al. 2020. Honokiol protects against epidural fibrosis by inhibiting fibroblast proliferation and extracellular matrix overproduction in rats post-laminectomy. *Int. J. Mol. Med.* 46: 2057-2068.
- Shindo, N., et al. 2021. Prolonged mitosis causes separase deregulation and chromosome nondisjunction. *Cell Rep.* 34: 108652.

RESEARCH USE

For research use only, not for use in diagnostic procedures.