SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin B2 (X121.10): sc-53239

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 two B type cyclins, cyclin B1 and cyclin B2, have been shown to have distinct tissue distributions.

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., 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 $p13^{suc1}$ sensitive and insensitive steps. FEBS Lett. 266: 4-8.
4. Doree, M. 1990. Control of M phase by maturation promoting factor. Curr. Opin. Cell Biol. 2: 269-273.
5. Gautier, J., et al. 1990. Cyclin is a component of maturation-promoting factor from *Xenopus*. Cell 60: 487-494.
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. Bodart, J.F., et al. 1999. Activation of *Xenopus* eggs by the kinase inhibitor 6-DMAP suggests a differential regulation of cyclin B and $p39^{mos}$ proteolysis. Exp. Cell Res. 253: 413-421.

SOURCE

cyclin B2 (X121.10) is a mouse monoclonal antibody raised against cyclin B2 of *Xenopus* 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.

STORAGE

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

APPLICATIONS

cyclin B2 (X121.10) is recommended for detection of cyclin B2 of *Xenopus laevis* 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)].

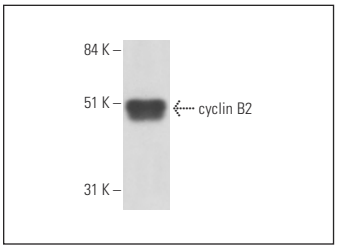
Molecular Weight of cyclin B2: 51 kDa.

Positive Controls: XLK-WG whole cell lysate: sc-364801.

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 B2 (X121.10): sc-53239. Western blot analysis of cyclin B2 expression in XLK-WG whole cell lysate.

SELECT PRODUCT CITATIONS

1. Jeseta, M., et al. 2012. Nitric oxide-donor SNAP induces *Xenopus* eggs activation. PLoS ONE 7: e41509.
2. Heim, A., et al. 2018. Calcineurin promotes APC/C activation at meiotic exit by acting on both XErp1 and Cdc20. EMBO Rep. 19: e46433.
3. Gelaude, A., et al. 2020. Hydrogen sulfide impairs meiosis resumption in *Xenopus laevis* oocytes. Cells 9: 237.
4. Marchand, G., et al. 2020. Effects of ferrocenyl 4-(imino)-1,4-dihydroquinolines on *Xenopus laevis* prophase I—arrested oocytes: survival and hormonal-induced M-phase entry. Int. J. Mol. Sci. 21: 3049.
5. Kamenz, J., et al. 2021. Bistable, biphasic regulation of PP2A-B55 accounts for the dynamics of mitotic substrate phosphorylation. Curr. Biol. 31: 794-808.e6.
6. Bouftas, N., et al. 2022. Cyclin B3 implements timely vertebrate oocyte arrest for fertilization. Dev. Cell 57: 2305-2320.e6.

RESEARCH USE

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