SANTA CRUZ BIOTECHNOLOGY, INC.

cyclin 3b (aT-15): sc-12878

The Power to Question

BACKGROUND

The cell cycle in *Arabidopsis thaliana* mediates organ morphogenesis, cell proliferation and differentiation, and these functions are restricted to the meristems. The cell cycle is controlled by cyclin-dependent kinases, which bind to positive regulators called cyclins. In particular, *Arabidopsis* B-type cyclin controls cell cycle progression by regulating gene expression late in the G_2 and M phases. Expression of cyclin Ds have been shown to increase in response to sucrose. Cdc2 and Cdc2B control cell cycle progression after forming a complex with cyclin. Prolifera and pelota are required for DNA replication and meiotic cell division, respectively.

REFERENCES

1. Ferreira, P.C., Hemerly, A.S., Engler, J.D., van Montagu, M., Enger, G., and Inze, D. 1994. Developmental expression of the *Arabidopsis* cyclin gene cyc1At. Plant Cell 6: 1763-1774.
2. Ragan, M.A., Logsdon, J.M. Jr., Sensen, C.W., Charlebois, R.L., and Doolittle, W.F. 1996. An archaebacterial homolog of pelota, a meiotic cell division protein in eukaryotes. FEMS Microbiol. Lett. 144: 151-155.
3. Ito, M., Iwase, M., Kodama, H., Lavisse, P., Komamine, A., Nishihama, R., Machida, Y., and Watanabe, A. 1998. A novel *cis*-acting element in promoters of plant B-type cyclin genes activates M phase-specific transcription. Plant Cell 10: 331-341.
4. Wang, H., Qi, Q., Schorr, P., Cutler, A.J., Crosby, W.L., and Fowke, L.C. 1998. ICK1, a cyclin-dependent protein kinase inhibitor from *Arabidopsis thaliana* interacts with both Cdc2a and CycD3, and its expression is induced by abscisic acid. Plant J. 15: 501-510.
5. Donnelly, P.M., Bonetta, D., Tsukaya, H., Dengler, R.E., and Dengler, N.G. 1999. Cell cycling and cell enlargement in developing leaves of *Arabidopsis*. Dev. Biol. 215: 407-419.
6. Yoshizumi, T., Nagata, N., Shimada, H., and Matsui, M. 1999. An *Arabidopsis* cell cycle-dependent kinase-related gene, CDC2B, plays a role in regulating seedling growth in darkness. Plant Cell 11: 1883-1896.
7. Lui, H., Wang, H., Delong, C., Fowke, L.C., Crosby, W.L., and Fobert, P.R. 2000. The *Arabidopsis* Cdc2a-interacting protein ICK2 is structurally related to ICK1 and is a potent inhibitor of cyclin-dependent kinase activity *in vitro*. Plant J. 21: 379-385.
8. Hemerly, A.S., Ferreira, P.C., Van Montagu, M., Engler, G., and Inze, D. 2000. Cell division events are essential for embryo patterning and morphogenesis: studies on dominant-negative cdc2aAt mutants of *Arabidopsis*. Plant J. 23: 123-130.
9. Riou-Khamlichi, C., Menges, M., Healy, J.M., and Murray, J.A. 2000. Sugar control of the plant cell cycle: differential regulation of *Arabidopsis* D-type cyclin gene expression. Mol. Cell. Biol. 20: 4513-4521.
10. Springer, P.S., Holding, D.R., Groover, A., Yordan, C., and Martienssen, R.A. 2000. The essential Mcm7 protein PROLIFERA is localized to the nucleus of dividing cells during the G_1 phase and is required maternally for early *Arabidopsis* development. Development 127: 1815-1822.

SOURCE

cyclin 3b (aT-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of cyclin 3b of *Arabidopsis thaliana* origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-12878 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

cyclin 3b (aT-15) is recommended for detection of cyclin 3b of *Arabidopsis thaliana* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.