



# cyclin A-type (aN-16): sc-12860

## 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<sub>2</sub> 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 archaeobacterial homolog of pelota, a meiotic cell division protein in eukaryotes. *FEMS Microbiol. Lett.* 144: 151-155.
3. Ito, M., Iwase, M., Kodama, H., Lavis, 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<sub>1</sub> phase and is required maternally for early *Arabidopsis* development. *Development* 127: 1815-1822.

## SOURCE

cyclin A-type (aN-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of cyclin A-type 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-12860 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

cyclin A-type (aN-16) is recommended for detection of cyclin A-type 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](http://www.scbt.com) or our catalog for detailed protocols and support products.