

Francis, D., Duditz, D., Inzé, D.: **Plant Cell Division**. - Portland Press, London 1998. 345 pp. USD 127.20. ISBN 1-85578-089-5.

The current book is the third major volume on the plant cell cycle to appear over the last 11 years. Indeed, it is fascinating to note the growth of the subject, and the turnover of techniques in the current volume compared with the first. This shows how enormously the subject has changed to embrace the techniques of molecular biology. The first eight chapters cover the plant cyclin-dependent protein kinases (Cdks) and the plant cyclins together with cell cycle-dependent gene expression. These chapters review current progress on the cell cycle in *Arabidopsis* (De Veylder *et al.*), *cdc2* and cyclin homologues of alfalfa (Duditz *et al.*), cyclin-dependent kinases in relation to the spatial and temporal controls of cell division (Sundaresan and Colasanti), plant cyclins (Renaudin *et al.*), D-cyclins which function in late G1 phase of the cell cycle (Murray *et al.*), the advantages and disadvantages of functional analysis of plant cell cycle genes through complementation in yeast (Hirt *et al.*), the ubiquitin-dependent proteolytic pathway and cell cycle control (Plesse *et al.*), and cell cycle-dependent gene expression patterns in plants (Ito *et al.*). Chapters 9 - 11 examine cell cycle control in relation to developmental control, especially the extent to which a cell size control is an integral component of normal plant development (Francis), cell proliferation in apical meristems of *Antirrhinum* as they undergo the vegetative to floral transition (Doonan) and how the external signal transduction chains affect endogenous controls of the cell cycle (Fehér *et al.*). The further chapters surveys the so-called licensing factors necessary for DNA replication and revisits Cdc25 phosphatase activity during mitotic activation (Sabelli *et al.*), histone gene activity in plants (Chaubet and Gigot), transcriptional regulation of plant histone genes (Iwabuchi *et al.*), plant microtubules in relation to their control in mitosis (Vantard *et al.*) and developmental mutants in higher plants which exhibit normal meristematic behavior (Traas and Laufs).

It is clear from this book, that we have a multitude of homologues to the fission yeast protein kinase, p34^{cdc2} even more homologues to the cyclins, the protein subunit to which the Cdk binds, but without which there is no kinase activity. Moreover, we have many of the unanswered question, as well as many black boxes in feed back loop control, regulation of kinase activity, function of phosphatases in plant cell cycle, attachment of signal transduction chains, *etc.*

Finally, it is clearly showed here that we cannot give a definitive answer to what controls mitosis plants. Hence, I hope that this book will help, stimulate and encourage researches to enter the study of the next exciting phase of the plant cell cycle control.

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