

some which he reckoned he knew fairly well and many new things. There are obvious omissions and each reader will find their own set of omissions. I was surprised that very little mention was made of cell culture technique. It would, of course, have been useful to have formulae of standard culture media and standard disaggregation media. It would have been useful to remind us how to count cells. There is no mention of image analysis value or of the closely related technique of video enhanced microscopy. A table of CD markers and their occurrence on various cell types would have been useful as would have been a more general table listing markers for a variety of cell types. Plant cells on the whole fared rather poorly in this compendium though they are not, by any means, entirely absent.

I found few obvious errors though the formula for the use of Trypan blue for staining dead cells is likely to result in falsely high values of dead cells. There is also no mention of the use of the reagent fluorescein diacetate for establishing cell viability.

All these are slightly carping criticisms and it may be that the editors and publishers will take note of them for future editions.

The text is good on the following topics. Basic buffers and methods of subcellular fractionation. There are two good chapters on light and electron microscopy. The chapter on DNA in chromosomes is perhaps rather lightweight but does contain useful information. The book clearly shows the interests of its contributors in mammalian membranes because there is a 23-page long chapter on the composition and structure of membranes followed by another chapter on membrane transport mechanisms and cell surface receptors. The book then turns to consideration of various enzyme inhibitors, the handling of cyclic nucleotides in steroid and peptide hormones. Growth regulators and oncogenes receive mention as do methods of determining the cell cycle. Finally there are two sections about centrifugation and the use of radioisotopes.

I describe the book as being essential for cell biology, molecular biology and many biochemistry department laboratories. It is the sort of book that you will want to have to hand rather than leave it languishing in the library. I recommend it strongly.

Adam Curtis

A Laboratory Guide for Cellular and Molecular Plant Biology; edited by I. Negrutiu and G.B. Charti-Chhetri, Birkhäuser Verlag; Basel, 1991. 386 pages. SwFr168.00. ISBN 3-7643-2542-9, 0-8176-2542-9.

This publication is the fourth volume in the Bio-methods series published by Birkhäuser. The collection appears to be making a significant impact in the 'methods book' arena by featuring essential technology required by those working on all aspects of gene expression in wild-type and transgenic systems. Earlier volumes have been well received and this particular contribution to the series is devoted to various aspects of the analysis and manipulation of gene expression in plants. This places it in an area which makes it a significant departure from many basic cloning manuals in that its starting point assumes that acquisition of a cDNA or genomic clone has already been accomplished and that procedures to study the myriad of aspects of gene expression, structure and variation are now required. However, it does occupy a similar ground to a small number of rival publications and is probably closest to Kluwer's Plant Molecular Biology Manual.

The emphasis of the volume should be immediately apparent by the presence of a line drawing of an *Arabidopsis* plant on the cover! In fact, the volume is divided into five thematic sections containing protocols covering protoplast and pollen culture, *Agrobacterium*-mediated transformation and direct gene transfer methodologies, nucleic acid extraction and separation techniques, structure and functional analysis of genes and finally, a number of advanced molecular cytology techniques which feature chromosomal analysis in particular.

Each section follows a similar format of an introduction, list of materials required, the protocol itself and a useful troubleshooting guide. This has resulted in a concise presentation which maintains a high standard of clarity throughout. Inevitably, in an effort to be comprehensive, there is duplication with other publications but

this reviewer perceives enough areas of novelty in comparison with manuals devoted to tissue culture on the one hand and molecular cloning on the other. Thus the authors have largely succeeded in their gap-bridging aim.

This volume would be most useful to the plant scientist who has hitherto been preoccupied with acquiring cDNA or genomic clones and now wishes to use these in analysis and genetic manipulation. Despite the odd minor irritation where a formulation has been omitted, most of the protocols would appear to be sound and operational without too much work-up. However some relatively unused skills in tissue culture and cytology may require resurrection in order to implement some of the procedures!

The most difficult concern relating to these types of studies is how universally applicable are the technologies. Now most plant molecular biologists realise there is probably no substitute to the well-established and active laboratory having its own set of protocols tailored to their own needs and, above all, the system under study. As the editors themselves concede, there is still much that is empirical in the study of the more recalcitrant species. This problem is reflected in the plants selected for the case studied. Thus, *Arabidopsis*, solanaceous species such as tobacco, tomato and potato are prominent while the only difficult species represented are maize and rice. However, a commendable effort has been made in presenting original and state-of-the-art techniques in a single volume and which can probably be adapted to individual needs. This excellent volume has succeeded in serving the field of study it was intended for.

Paul Bolwell

Cellular and Molecular Biology publishes original articles, reviews, short communications, methods, meta-analysis notes, letters to editor and comments in the interdisciplinary science of Cellular and Molecular Biology linking and integrating molecular biology, biophysics, biochemistry, enzymology, physiology and biotechnology in a dynamic cell and tissue biology environment, applied to human, animals, plants tissues as well to microbial and viral cells. The journal Cellular and Molecular Biology is therefore open to intense interdisciplinary exchanges in medical, dental, veterinary, pharmacol A Laboratory Guide for Cellular and Molecular Plant Biology; edited by 1. Negrutiu and G.B. Charti-Chhetri. Birkhsuser Verlag: Basel, 1991. 386 pages. SwFr168.00. ISBN 3-7643-2542-9, O-8176-2542-9.Â this revtewer perceives enough areas of novelty m comparison with manuals devoted to tissue culture on the one hand and molecular cloning on the other. Thus the authors have largely succeeded m then gap-bridging aim. This volume would be most useful to the plant scientist who has hitherto been preoccupied wth acquiring cDNA or genomic clones and now wishes to use these m analysts and genetic manipulation. Despite the odd minor irritation where a formulation has been omitted, most of the protocols would appear to be sound and operational without too much work-up. Standard molecular biology techniques (Isolation and quantification of DNA, RNA and/or proteins, restriction digestion, sub-cloning, ligation, PCR, cDNA synthesis, separation by gel electrophoresis or FPLC, SDS-PAGE, Southern-blot, Western-blot, Northern-blot, assembly cloning (SLIC, Gibson assembly etc.), transformation of Escherichia coli and other bacteria, (conjugation from E. coli). Library cloning and cloning of large DNA fragments (BAC, fosmids) and screening (at the HTS laboratory). Taxonomic population studies by amplicon sequencing. Largescale Illumina Sequencing (genome sequencing,