

the Plant Metabolism Group of the Society for Experimental Biology. This was the 42nd meeting of the SEB held in 1989 at Edinburgh University.

Eleven main presentations appear in this book, each in the form of a chapter contributed by an eminent researcher(s). Michael Emes has given the volume a remarkable homogeneity with his excellent editorial skills. The subject area includes compartmentation of metabolism in roots, endosperm, seeds, meristematic tissue and non-green cell cultures. In this respect the book represents the first comprehensive account of the subject in non-photosynthetic tissues. The location of metabolites and particular enzyme activities in leaf cells and other photosynthetic organs have been the subject of much wider studies and documentation. Nevertheless, many non-photosynthetic tissues of seeds, tubers and other storage organs are of immense commercial importance as they yield products such as starch, protein and oil.

The introductory chapter is contributed by the pioneer in this field, Harry Beevers, who has presented an overview of metabolite compartmentation and outlined the isolation techniques of plant organelles. The nature of this book and space limitations have not allowed inclusion of detailed experimental methods, however, the bibliography has the pertinent references. The next four chapters are on lipid synthesis, oil bodies, protein bodies and leucoplasts,

respectively. The glycolytic enzymes of leucoplasts are the isoforms of those occurring in the cytosol. However, open questions still remain unanswered regarding their genetic origin. Thus, are they true isozymes? The following three chapters are related to carbohydrate metabolism, starting from the masterly treatment of C-6 and C-3 sugar phosphate interconversion by T. Rees and his co-workers. Peter Keeling has covered the related area of research on starch synthesis in wheat grain. Roland Douce and his co-workers have described the events that take place in the plant cell following sucrose deprivation. In the next three chapters nitrogen metabolism and control of respiration in roots and shoots are discussed. Nitrogen metabolism is closely dependent on other metabolic processes in the plant and is of central importance because of its agricultural significance.

On the whole this book provides the reader with up-to-date knowledge concerning compartmentation of metabolism in non-photosynthetic plant tissues. The book will be extremely useful to biochemists, plant physiologists, biotechnologists and the researchers working in allied fields. The undergraduates and post-graduates taking plant based courses should also be immensely benefited by this book.

P.M. Dey

Essential Molecular Biology — A Practical Approach, Volume 1; Edited by T.A. Brown; IRL Press at Oxford University Press; Oxford, 1991; xx + 299 pages; £22.50

This is yet another molecular biology cloning manual. The question that arises is why one should wish to buy it with such a plethora of other books in a similar vein now on the market. The initial reason is probably because this is another title in the Practical Approach series from IRL Press, which over the last few years have produced almost fifty titles ranging from DNA Cloning I to Protein Sequence Analysis and Oligonucleotide Synthesis. The virtue of these books is that they are a hands-on how-to-do series which often tackle fairly complex biological procedures. The most recent addition to this series, Essential Molecular Biology I, seems to have stepped away from this pattern of explaining complex techniques to experienced biologists, and emphasises the most basic techniques for the beginner.

Chapters include microbial techniques in molecular biology, which emphasise the growth of bacteriophage, how to culture *E. coli* and the characterisation of bacterial strains, followed by a section on culturing bacteriophage Lambda and M13. Four further chapters cover the purification of DNA, RNA, electrophoresis of nucleic acids and the recovery of DNA from electrophoresis gels. Although this book claims to be very much for the beginner, it is a pity that there is not more introduction given to these chapters. The background and the why's and the wherefores are actually found in the introduction to the book, by T.A. Brown, the editor. The beginner must also be bewildered by the fact that Chapter Six contains at least nine different methods for extracting DNA from gels without any logical explanation of which is the best method to use, or which method gives the best recovery. The novice gene cloner also has to make a guess on

which method of phosphatase DNA is suitable for his particular construction. As with several of the other chapters in this book, the authors seem afraid to make value judgements of what they consider to be the best approach. Chapter Seven also contains a rather bizarre method for doing double digests of DNA with two restriction enzymes. The protocol given takes several hours.

Chapter Seven contains a detailed protocol for digesting the bacteriophage Lambda EMBL 3 in order to make a genomic DNA library. The last stage of the protocol suggests that the DNA can be stored at 4°C or at -20°C for prolonged storage. I recommend the latter, as details for the ligation of the Lambda arms to genomic DNA are given in Chapter Two of Volume II of this series, which has not yet been published! It is not clear why a long detailed protocol should be given for the preparation of Lambda gtWES, when this vectors have been superseded by the EMBL series.

The Appendix consists of five sections on: equipment required in a molecular biology laboratory; safety; important *E. coli* strains, which include C600, but surprisingly not C600HFL (even though Lambda gt 10 is mentioned in the text), recipes for buffers, and computer generated banding patterns for restriction digests. Surprisingly, the actual DNA sequence of the recognition site for the restriction enzymes is not given.

Unfortunately I cannot really recommend this book. For a beginner, a better buy would be the new second edition of DNA Cloning by J. Sambrook et al. and, for the very basic techniques, a book called DNA Cloning by T.A. Brown.

J.F. Burke

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