

The authors' conclusions are presented in detail in chapter 11, and there is a list of about 540 references with titles and journal names in full, including the supplementary references on page 272. Among the references I happened to notice one by Badler, McGovern and Michel (1990) with the title 'Drink and be merry! Infrared spectroscopy and ancient Near Eastern wine'. There is, finally, what looks to me like a very useful index, and I should have said that there are a number of helpful illustrations.

This book should be of interest to evolutionists, botanists, plant geneticists and any others who want to know how our ancestors tricked grasses (fodder only for specially designed teeth and stomachs) into becoming their main source of food. It is very cheap, at £15, for the large amount of interesting information ably presented. I first came across a copy in a general book shop in the middle of Princes Street, Edinburgh, and hope this review will force them to increase their stock.

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Molecular Biology: Current Innovations and Future Trends. Part 1. Edited by ANNETTE M. GRIFFIN and HUGH G. GRIFFIN. Horizon Scientific Press 1995. 165 pages. Price £19.99. US\$39.99. ISBN 1 898 486 018

One could be led to believe that a molecular biologist armed with a copy of 'Maniatis', or one of the Current Protocols publications, would have adequate technical support to successfully accomplish most experimental procedures. In the real laboratory world, we know that even established methodology is adapting and changing at an alarming rate and that new experimental approaches are regularly appearing on the horizon. This small book fills an important niche in the market, for it aims, and I believe succeeds, in bringing the reader up to date with recent innovations in established techniques as well as introducing us to more state of the art methodology.

The book contains ten chapters, all written by experts in the particular fields and interestingly, the editors have recruited over half the authors from the commercial sector. These contributors tend to bias their chapters towards products available from their particular companies, although in general they seem to have covered their subjects fairly comprehensively. Each chapter covers a review of the technique, concentrating on recent innovations and then discusses likely future trends. Most chapters end with protocols covering recent advances or more specialised approaches. Each chapter is also accompanied by an extensive list of references, in most cases concentrating on papers published in the last five years. All chapters refer to material published last year, which is a good indication that the editors and publishers have

succeeded in bringing this book to the bookshelves without undue delay.

The first chapter covers general PCR techniques and is written by a group of authors from Stratagene. In addition to covering recent advances in PCR methodology and instrumentation, the authors describe specific techniques such as cloning PCR-generated fragments and using PCR for site-directed mutagenesis. Sadly, the accompanying figures are black and white copies of coloured diagrams from the company's catalogue and some of the detail has been lost during reproduction. A specific utilisation of PCR, thermal cycle sequencing, is described in the next chapter, which contains a generalised protocol for the technique. This is followed by a chapter devoted to methods for isolating plasmid DNA from mini-preps using silica-based resins. Whilst there are a profusion of commercial kits available, the author very rightly draws attention to the dangers of total reliance on these products and so presents a very extensive protocol utilising common laboratory reagents and equipment.

Electrophoresis is covered by three chapters, the first by Branko Kozulic, who provides a very readable account of recent theories which attempt to explain electrophoretic phenomena, including his own 'door-corridor' model. He also provides a tantalising glimpse into the world of new gel matrices and intercalating dyes. The second chapter is devoted to pulsed field gel electrophoresis (PFGE) in which the authors review the various aspects of the technique and provide protocols for the preparation of high molecular weight DNA from soybean leaves and provide physical mapping data from PFGE combined with two dimensional electrophoresis. The other chapter describes capillary electrophoresis (CE) as applied to the isoelectric focusing of proteins and provides an extensive protocol and a troubleshooting chart.

A chapter on subtractive hybridisation describes the use of commercially available multipurpose cloning vectors to perform cDNA subtractive hybridization between biotinylated RNA and single stranded DNA. The unhybridised product is purified by streptavidin and used for transformation. This technique should appeal to researchers involved in gene expression and developmental studies.

The widespread use of PCR in molecular biology has required the simultaneous development of reliable methods for the production of oligo primers. A chapter describes recent developments in the related field of oligoribonucleotide synthesis. The demand for synthesized RNA is likely to increase as interest in antisense RNA and the possible use of ribozymes in gene therapy intensifies.

Finally, there are two interesting chapters on instrumentation. One describes state of the art devices for automated DNA hybridization and detection and the other is devoted to a relatively new technique called matrix assisted laser desorption ionization mass

spectrometry (MALDI). The authors speculate that MALDI will, in the not too distant future, replace gel electrophoresis in the analysis of DNA sequencing reactions.

This modestly priced book provides the molecular biologist with a wealth of current information on a wide variety of essential techniques. I look forward to the publication of volume 2 in this series, later this year.

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Manipulating the Mouse Embryo. A Laboratory Manual, 2nd Edition. By BRIGID HOGAN, ROSA BEDDINGTON, FRANK COSTANTINI and ELIZABETH LACY. Cold Spring Harbor Laboratory Press 1994, 497 pages. Price \$95. ISBN 0-87969-384-3.

Before I opened the second edition of this classic laboratory manual I could tell that it had changed in two respects. It was bigger than the 1986 edition and it had gained a fourth author, Rosa Beddington. Once inside I could see that it had grown by about 50% (from 332 to 497 pages), several new colour figures and many new references had been added. About 800 references are cited, just over half of which were published after 1986 and so have been added since the last edition. Not surprisingly, the successful format of the first edition has been retained. The mouse linkage map has been omitted from the appendices, presumably because it dates so quickly. Otherwise, most of the first edition has been retained and expanded and the finished product is, as before, excellent.

Following an 18 page historical overview of mouse developmental genetics and embryology and an expanded summary of mouse development (now 93 rather than 59 pages), the book is divided into eight technical sections plus three appendices (recipes for buffers and solutions, sources of information and a list of suppliers), a reading list, a short glossary of the mouse genome and an index. The technical sections cover establishing a mouse colony; recovery, culture and transfer of embryos and germ cells; manipulation of preimplantation embryos; production of transgenic mice; embryonic stem cells; analysis of transgenic mice; visualising genes and gene products; media and culture conditions required for eggs, embryos, primordial germ cells and teratocarcinoma cells.

Rosa Beddington's influence can be seen in the expanded sections on gastrulation, fate maps and organogenesis in the revised *Summary of Mouse Development*. There are several new illustrations including an annotated diagram of development from fertilisation to term, colour diagrams of mouse development from 4½ to 8½ d, epiblast fate maps, gene expression in the primitive streak and antero-posterior expression of *Hox* genes. The section that, in the first

edition, was entitled *Introduction of new Genetic Information into the Developing Mouse Embryo* has been replaced by two new sections: *In Vitro Manipulations of Preimplantation Embryos* and *Production of Transgenic Mice*. The section on embryonic stem cells has increased from 14 to 38 pages and a 34 page section on *Analysis of Transgenic Mice* has been added. Despite the relocation of some of its original text (e.g. karyotype analysis) to *Analysis of Transgenic Mice*, the section on techniques for visualizing genes and gene products has more than doubled in length (now 60 pages) to accommodate descriptions of immunohistochemistry, whole mount *in situ* hybridization and lac-Z staining.

There are several other books that cover techniques for manipulating mouse embryos. For example, those edited by Monk (1987), Copp & Cockcroft (1990) and Wasserman & dePamphilis (1993) are all excellent multi-author volumes that can be recommended. Most labs could probably make good use of all these technical manuals but if I could only have one of them Hogan, Beddington, Costantini and Lacy would be my first choice. It is more than a compilation of essential protocols, it is a well-balanced textbook encompassing both theoretical and practical aspects of modern mouse development biology. My recommendation is simple – if you work with mouse embryos you will definitely need a copy of this superb book. It is also an excellent source of information for those who teach mouse developmental biology and so should be available in all university libraries. Unfortunately, if you live outside the USA you will have to be patient with your bookshop because they will probably have to order it directly from Cold Spring Harbor Laboratory Press.

References

- Copp, A. J. and Cockcroft, D. L. (1990). Postimplantation mammalian embryos. A practical approach. IRL Press, Oxford.
Monk, M. (1987). Mammalian development. A practical approach. IRL Press, Oxford.
Wasserman, P. M. and dePamphilis, M. L. (1993). Guide to techniques in mouse development. Academic Press, San Diego & London.

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Cellular Receptors for Animal Viruses. Monograph 28. Edited by Eckard Wimmer. Cold Spring Harbor Laboratory Press 1994. Cloth. 600 pages. Price \$97. ISBN 0-87969-429-7.

This 600-page volume is a comprehensive review of the subject of viral attachment to host cell receptors. It contains published material up to September 1994.