



Molecular Biology and Biotechnology

Edited by J.M. Walker and R. Rapley,
Royal Society of Chemistry 2001, 4th edn, Price £39.00,

563 pages in softback, ISBN: 0-85404-606-2

Molecular Biology and Biotechnology is a book with a large remit. Within its 550+ pages, it attempts to provide grounding in such diverse areas as fermentation technology, molecular diagnosis of inherited disease and bioinformatics. To attempt to cover such a range of subjects in a single book is rather brave, and the editors have succeeded to a large degree. Now in its fourth edition, this text has been 'completely revised and updated to provide a comprehensive overview and reflect all the latest developments in this rapidly expanding area'. This is the main strength of the text; it covers a wide range of subjects so that most areas of interest in this field are covered somewhere within its pages. Each of the 19 chapters covers a specific area of molecular biology or biotechnology and subjects range from the routine basics (*Chapter 2: Molecular Analysis and Amplification Techniques*; by R. Rapley) to the emerging technologies of today (*Chapter 19: Biosensors*; by M. Chaplin).

This book is not a practical book in the usual sense of the word; it does not contain a series of recipes or 'how to do' lists. Instead, it concentrates on the more important concepts behind these recipes. Hence, there is a comprehensive explanation of PCR before discussions of primer design, alternate PCR cycles (e.g. touchdown PCR) and automation (e.g. TaqMan™). This all leads to a book that will, as the authors suggest, be 'an ideal undergraduate text'. The ability to learn a little about many subjects is key to the

foundation of many undergraduate degrees and this book serves this purpose well. None of the chapters cover individual topics in great detail, although they are heavily referenced for the interested reader to study further. That said, some of the references are relatively old, and the web addresses used in the bioinformatics chapters are accurate but not informative. For example, GenBank, dbEST, dbGSS, dbSTS, UniGene and NCBI are all referenced to the NCBI homepage. Although this is true, it could leave the uninitiated reader wondering what the difference is between all these databases!

A potential detractor of the book for undergraduates is the quality of the diagrams. Although the content of the diagrams is good and they are heavily used to illustrate the concepts explained, the printing quality is poor. Shaded areas of the diagrams are uneven and often too dark, resulting in overlaid text or images being difficult to read. This is a shame as the use of diagrams is of paramount importance in a 'concept book', such as this.

I suspect that, although this text might find its way onto the shelves of undergraduates and some postgraduates, more experienced researchers will probably find it falls short of the information that they require. In many instances, they would be better served getting a specialized text on the particular discipline they are interested in or recent journal publications, especially as many of the technologies discussed are moving extremely rapidly. This is exemplified by

the coverage of differential display and the Human Genome Project in this book. The former is well covered and explains the theory well, however, it does not cover more recent techniques, such as suppression subtractive hybridization (SSH) or representational difference analysis (RDA), which are probably of more interest to the researcher. Coverage of the Human Genome Project is spoilt somewhat because, between the publishing of this book, which discusses the completion of the project by 2003, and this review, the first draft of the Human Genome has been published¹.

Such small niggles are probably unfair as the text is not aimed at the cutting edge researcher but at the learning undergraduate. In this context I feel that the book is worthwhile; for many undergraduates a single text covering the concepts behind many disciplines will be welcome. Overall, there is much to recommend this book to the less experienced scientist, although more experienced researchers will soon find themselves outgrowing it and wishing to learn more detail about the specific subject areas.

Reference

- 1 Venter, J.C. *et al.* (2001) The sequence of the human genome. *Science* 291, 1304–1351

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What does the human genome sequence mean to you?

Commentaries relating to the publication of the draft sequences can be found both in print in several Trends titles, and online in the Commentary section of BioMedNet (updated daily at <http://news.bmn.com/commentary>).