

## Book reviews

**Experiments in Molecular Biology: Biochemical Applications.** Burton ZF, Kaguni JM. (£25.00.) Academic Press. 1996. ISBN 0 121 47370 8.

A book, like a person, is a multilayered entity and as such deserves to be assessed on numerous levels. First, what does this book set out to be, and how does it achieve its primary goal? Its primary aim is to be an undergraduate teaching manual, based on the course at Michigan State University. As such it aims to provide the student with a structured introduction both to the theory and practice of molecular biology and, in this second area particularly, provide a series of experiments that work successfully. How do the authors succeed? The succinct answer is exceptionally well. Exceptionally well, because the English is clear and eminently readable. Exceptionally well, because their enthusiasm for science in general and the specific topic comes through the language and should stimulate even the most jaded and exam weary undergraduate. Although it is impossible for a reviewer to affirm absolutely that the experiments work without testing each protocol, experience suggests that they do. There is good attention to detail, which engenders confidence. Establishing in the student a virtuous cycle of success and confidence is one of the most important considerations in a practical course. Furthermore, the course is sufficiently comprehensive that new techniques the student will encounter should not pose too many problems. If I were an undergraduate, I would want to go on a course like this, with a book like this.

For the lecturer developing similar courses in different establishments, the book offers a framework around which he or she may develop courses unique to their own requirements. Not everyone would want to or may not have the time to include all the experiments outlined, and the protocols are in sufficient detail and stand sufficiently alone to allow a "pick and mix" approach.

Does the book have a broader appeal than simply as an undergraduate teaching manual? I think it does—as a guide to research students. Here it comes into competition with far more comprehensive tomes, such as that of Sambrook, Fritsch, and Maniatis, and with texts dealing exclusively with a particular technique—for example, the many books dealing with PCR methodology. Clearly it cannot compete fully with such books in terms of range or completeness. Nevertheless, its attention to basic details should help to elucidate matters when experiments, which ought to work, do not. However, this book, justifiably, does not claim to represent the cutting edge in new technical developments. Despite this, it would be a useful addition to most research laboratories' working libraries.

Finally, how does the book work as a book? Its feel is right—not too heavy and big to be cumbersome, and the plastic spine makes the pages easy to turn and fold, which is useful when working in the laboratory. The layout and font are clear and unfussy, which again makes it easy to use as a workbook. A minor criticism is that I would have preferred all steps in a protocol to be kept to a single page,

where possible, rather than having to turn over in the middle.

D B RAMSDEN

**The Metabolic and Molecular Bases of Inherited Disease CD-ROM.** Scriver CR, Beaudet AL, Sly WS, Valle D, eds. (£299.95.) McGraw-Hill, 1997. ISBN 0 0786 4187 X.

I have inhabited my (large) office in our laboratory for some five or so years and in that time I have run out of book and journal storage space. My computer has, however, if anything become smaller. It gives me some hope for the state of my living quarters through the working day that CD-ROMs such as this exist. The three volume conventional book set is, I am sure, beautiful (I am a "bookie") but there is no doubt that the CD-ROM medium offers wonderful cross referencing facilities never available in the conventional published format. (Why is it that which ever part from a multivolume book I take from my shelves it is always the wrong one? Publishers, please give a list of chapters or content topics on the spine!)

This CD-ROM is superb: it is easy to load and does not require ludicrous amounts of memory, although larger amounts of RAM do, of course, improve matters. The front end is attractive and easy to use. Cross referencing is excellent and the pictures clear and easy to follow. I am not an expert in the metabolic disorder field but feel that I am closer to the subject now. This is partly because CD-ROMs are fun. One has almost a feeling of power to have such easy access to such a vast amount of information. Closer to my heart was the cancer section, which I see was upgraded massively from previous editions of the book. How things have changed. Cancer is at last recognised as a metabolic/inherited disease. This section, like the rest of the CD, is very good. Oncogenes of all sorts are discussed in detail.

Finally, returning to good old paper, the manual accompanying the CD-ROM has a most useful index with notes regarding the new material in this edition. (Most impressively, this occupies four pages.)

I can do no more than say that I should now be lost without this magnificent text, especially in its electronic form.

J CROCKER

**Human Cytogenetic Cancer Markers.** Wolman SR, Sell S, eds. (US\$125.00.) Humana Press, 1997. ISBN 0 8960 3357 0.

This is an ambitious, multiauthored work that attempts to review our current understanding of chromosomal abnormalities and their molecular basis as far as they are known, across a huge area of cancer biology. The experienced editors have assembled an impressive group of authors who have marshalled a large amount of information into a reasonably digestible format. The use of diagrams and tables in a book of this sort is an absolute must to ensure reader attentiveness. This aim occasionally breaks down as in fig 3, chapter 13 on brain tumours where a magnifying glass would be useful in distinguishing between chromosome breakpoints in different sorts of astrocytomas.

The title of the book seems to have been dictated by the fact that it is the latest in a series on cancer markers. The editors rightly point out, in a useful introduction, that

genetic changes are a fundamental part of the disease process rather than markers in a conventional sense.

The book is divided into two parts with a section on comparative technology and one organised chapter by chapter on an organ and site specific tumour basis. Rather quirkily, a final chapter in this section, called special techniques in cytogenetics, turns out to be a chapter devoted exclusively to chromosome microdissection. This is a technique of rather limited application in the context of solid tumour cytogenetics. This oddity aside the layout of the book is good although the rather small number of colour plates are corralled together in the middle of chapter 9.

The editors are aware that with the advent of the new cytogenetic techniques described in this book, such as fluorescence in situ hybridisation (FISH) on paraffin wax sections and comparative genomic hybridisation (CGH), the cytogeneticist has been freed from the shackles of obtaining classic chromosomal preparations from intractable material. The challenge addressed in this book is how to integrate this new information with conventional cytogenetics, cytometrics, and pathological classification rather than being buried by it. This text is a creditable attempt to try to ensure that mere information gathering is translated into increasing our knowledge and understanding of the genetics of human solid tumours.

J WATERS

**Molecular Biology of Cell Adhesion Molecules.** Horton MA, ed. (Pp 248; £34.95.) John Wiley & Sons, 1996. ISBN 0 4719 6677 0.

The cell adhesion molecule literature is now so large that to review it comprehensively would be a massive task. Rather than do this, Professor Horton and the chapter authors of this book have written about a selection of topics from the cell adhesion field at a level of detail that is accessible to a general audience. The choice of topics is fairly well judged, covering important areas such as carcinogenesis, microbial pathogenesis, and inflammation. The selection of topics has a strong bias towards subjects of clinical relevance, covering all of the major areas of pathology where cell adhesion is known to be important, with the possible exception of haemostasis and thrombosis (although this is touched on in some sections).

The book is generally well written and there is some good use of tables and diagrams. There is some repetition as chapter authors give unnecessarily basic introductions, but this is a minor point. The editor's own contributions are particularly good; the "at a glance" guide to adhesion receptors and ligands will be useful for many readers. This is a reasonably priced book that will be useful primarily to medics wishing to know more about cell adhesion molecules, but it is also relevant to scientists wishing to broaden their knowledge of the field.

D HUGHES

**Human Chromosome Preparation.** Rooney DE, Czepulkowski B. (£16.99.) Wiley, 1996. ISBN 0 4719 6299 6.

The understanding of chromosome abnormalities and their molecular basis has moved centre stage over the past decade and now illuminates many areas of medicine. Rooney and Czepulkowski have rapidly cornered the

market in compact, relatively easily digestible "how to" manuals for the techniques required to visualise human chromosomes. This is the third offering that they have edited or written in recent years, all aimed at those interested in the craft of obtaining human chromosomes from a variety of human tissues.

This manual is aimed primarily, but not exclusively, at those working in the diagnostic setting of clinical cytogenetics. It is practically packaged in a compact, ring-bound, format, which means that it will lie flat at any page. The information is clearly laid out and easily accessible. Due consideration is given to the safe handling of buffers and reagents and there is a comprehensive list of suppliers. Much of the information in the manual applies to techniques which are in routine use in laboratories worldwide. There is an illustrated section on fluorescence in situ hybridisation (FISH) that, sensibly, is not too ambitious in its scope. It deals with FISH applications such as whole chromosome painting that most diagnostic laboratories now use routinely.

So who or what is this book for? This manual is no substitute for learning from experienced practitioners. Nevertheless it will be useful to the large numbers of trainees and visitors who pass through clinical cytogenetics laboratories, as a source of reference, in gaining a modicum of technical expertise in basic techniques as quickly and efficiently as possible.

J WATERS

**PRINS and in-situ PCR Protocols.** Gosden J, ed. (£45.00.) Humana Press, 1996. ISBN 0 8960 3395 3.

This multiauthor textbook, part of the *Methods in Molecular Biology* series from Humana Press is timely in its publication. John Gosden has done a fine job in editing this excellent text. Gosden initially introduces the reader to PRINS (primed in situ synthesis) technology and its application to metaphase chromosome spreads. Detailed protocols are presented in a clear and organised fashion. The reader is immediately directed to which materials and chemistries are required to achieve successful PRINS. The methodology is clearly presented, with helpful hints highlighted throughout the text. Of interest also to the first time user of such technology

is the notes section, which answers many of the fundamental questions that laboratory workers ask in relation to PRINS technology. Good representative examples of PRINS applications are presented in the chapter.

The remainder of the text is organised in a simple direct style, easy to read and follow, again with the notes feature, which is warmly welcomed.

The reader is presented with detailed methodologies to perform chromosome specific PRINS, PRINS DNA synthesis on frozen tissue sections and multiple sequential oligonucleotide PRINS (multi PRINS). The chapter on PRINS using extended chromatin preparations is extremely welcome, as many laboratory investigators have attempted this technique, largely unsuccessfully. The helpful hints and notes section again raises many important points in relation to extended chromatin PRINS.

Gosden and his co-workers also present a detailed chapter dealing with combined immunocytochemistry and PRINS DNA synthesis. This is another area of difficulty for people working in the area of in-cell DNA and RNA synthesis. The reader will gain many helpful tips from reading this section.

The final chapters of the book deal with in situ PCR methodologies, ranging from direct in situ single copy (DISC) PCR, reverse transcriptase (RT) in situ PCR, combined flow cytometry, and in-cell DNA synthesis of HIV-1 proviral DNA to localised in situ amplification (LISA). The final chapter written by Paul Komminoth gives an excellent overview of in situ PCR technology and its possible advantages and pitfalls.

In general, all chapters are well referenced with excellent representative illustrations of the various applications of PRINS and in situ PCR technologies. The use of colour plates adds to the text, but I feel that more extensive use throughout the text would have contributed significantly to the impact of this book.

In summary, John Gosden and his co-authors are to be congratulated on a fine text, which gives the uninitiated and the experienced an excellent template with which to perform in-cell amplification experiments. I am sure that this text will be an excellent addition to any science or pathology laboratory.

J J O'LEARY

**The Immunopathology of Lung Disease.** Kradin RL, Robinson BWS, eds. (£87.99.) Butterworth-Heinemann, 1996. ISBN 0 7506 9282 0.

This is a multiauthor book of almost 700 pages, edited by two leading authorities in the field. The first few chapters deal with the immune response to inflammation and infection in general as well as the function of the various cells involved, including lymphocytes, macrophages, and dendritic cells. The greater part of the remainder of the book is devoted to chapters on the immunological aspects of specific diseases. Sarcoid, tuberculosis, HIV infection, vasculitis, parasitic disease, and aspergillosis are covered, and there are sections dealing with silica and asbestos, and tumours of the lung and pleura. Most chapters conclude with between 100 and 200 references, and sometimes there are many more—for example, the section on AIDS cites 677.

In his preface, Dr Kradin, who is trained in general and chest medicine, immunology, and anatomic pathology, is at pains to point out that this book is not primarily to dispense information. The aim is to give each author the space to present their own interests, perspectives and perhaps prejudices—to expound their own "mythologies"—thereby providing a framework for the reader's personal development of the topic. Dr Robinson's separate preface counterpoints his colleague's observations, pointing out quite rightly that books of this type are essentially punctuation marks in the evolution of a topic. They present paradigms that by their very nature are ephemeral, and which may not always be in accord with current perceptions.

This book will prove a useful source of information in a rapidly expanding and changing field. It is not an exhaustive text, nor does it set out to be—and by its very nature it will soon become dated. But as a distillation of current ideas, as a source book for research, and as an adjunct to standard works it cannot be bettered. It is recommended reading for clinicians and laboratory workers alike. It is to be hoped that the authors will be able to produce a second edition in the fullness of time.

C W EDWARDS



## Human Chromosome Preparation

J Waters

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