Book Reviews

Biotechnology: Proteins to PCR. A Course in Strategies and Lab Techniques; Edited by D.W. Burden and D.B. Whitney. Birkhauser; Basel, Boston, Berlin, 1995. xii+317 pp. SFr. 58.00 (pb). ISBN 0-8176-3843-1

There are many excellent text books for teaching biochemistry and molecular biology, but most of them contain a lot of theory and little about how to actually design biological experiments. On the other hand, there are also many text books that provide a introduction to laboratory techniques, but almost all deal with specific techniques and provide very detailed descriptions of these, but little overview of the long and tedious line of experiments that are needed for most biochemical and, especially, molecular biology projects. Thus, there is a need for a text book that gives an overview of how to design biochemical and molecular biology experiments and, at the same time, teaches 'good laboratory praxis', in a form that is suitable for an introductory course aimed at undergraduate students who are about to start their laboratory projects. This book provides exactly that! Moreover, it is written in a form that can also be used for introducing students or technical personnel to the 'thinking and behaviour' of research labs, without requiring a lecture course.

Each of the 14 chapters includes a theoretical and a practical section that are suitable for a lecture, followed by 'a day in the lab' (most of the experiments can be performed in about 4 h, depending on the level of instruction and the students) and there are study questions and suggestions for further reading after each chapter. The book has an overall theme: Characterisation of α-galactosidase from the yeast *Saccharomyces carlsbergensis*. The experiments starts with characterising α-galactosidase in the yeast media, continues with purification and characterisation of the protein and ends with the cloning of the corresponding gene and computer analysis of the sequence. Thus, it takes the students through a classical molecular biology project. The book provides lists of all the material needed for all the experiments and detailed lab protocols for each step.

Chapter 1 deals with general lab techniques such as laboratory safety, the importance of taking notes, handling of proteins and nucleic acids, preparation of buffers and maintenance of microbial cultures; in addition, it gives a nice introduction to biotechnology. Chapters 2 and 6 are devoted to the function, analysis and purification of proteins; Chapter 2 gives a general introduction to protein function and the diverse biological functions of proteins. Chapters 3, 4 and 5 deal with various aspects of protein purification, from crude lysate to purified protein. Different purification strategies are described, including ion exchange, hydrophobic interaction and affinity chromatography and gel filtration. Most are also included as detailed lab protocols for the practical exercises where the students are guided through the preparation of column material, packaging of columns and loading and elution of their samples. Chapter 6 finishes the protein section by describing how to analyse the purified protein by native or renaturing poly-acrylamide electrophoresis and, especially, how to verify that it is the right enzyme by functional analysis. Amino acid analysis and protein sequencing are described in a straight forward way in the theoretical section.

Chapters 7–12 are focused on nucleic acids and cloning of genes, starting with a general introduction to nucleic acids and a description of how to design a cloning strategy. Chapter 8 describes how to purify and quantitate nucleic acids, and this is used in Chapter 9 where the theory and application of restriction enzymes and agarose gel electrophoresis is described and a gene bank of yeast genomic DNA is constructed. This gene bank is then introduced into *E. coli* in Chapter 10 where again both the theoretical and practical sections are kept at a level where the weight is on the basic aspects of the technology. The cloning section is continued in Chapter 11, where the constructed library is screened, using either oligonucleotides or a cDNA fragment as probes. The principles of the screening process and the design of probes are nicely described in the theoretical section. However, I miss a section describing the use of antibodies as probes, since this is often a faster and more obvious method, especially since the protein has been purified in the previous chapters and is ready for injection into a rabbit. However, this requires the use of either more randomised genomic DNA or the construction of a cDNA library, which may be outside the scope of this book; the latter (cDNA library) is shortly introduced in the theoretical part of Chapter 7. Similar to the protein section, the nucleic acid and cloning section ends with a chapter about characterising the clones and verifying the identity of the cloned fragment. In this chapter (Chapter 12), the principles and application of restriction mapping, Southern blotting and DNA sequencing is introduced. Moreover, the cloned fragment is reintroduced into yeast and shown to express the protein, an excellent way to emphasise the importance of verification. Chapter 13 describes computer-assisted sequence analysis and gives a (very) short introduction to PCR. In my opinion, this is the weakest chapter in the book, especially the section on PCR does not match the importance of this technology. On the other hand, the PCR technology is used in so many different applications that it probably requires a whole book to cover it adequately and this is clearly not the scope of this book. The part on computer assisted sequence analysis is too short, but describes the most important aspects and it is difficult to go into details without selecting a certain software package. The book ends with a shorter chapter named 'The value of information' and this matches the very high standard of the rest of the book. In it, the authors ask the question: Who cares about *Saccharomyces*, α-galactosidase and the *MEL1* gene? and answers the question in a way that is illustrative for many molecular biology projects.

In conclusion, this is an excellent text book for an introductory course for graduate students that are about to start their lab projects and it can as well be used for introducing students or technical personnel to working in a molecular biology lab, without absolutely requiring a course. It is obvious that the authors have a long experience in teaching and that they have an understanding of the importance of giving 'new researchers' an overview of the research process. I strongly recommend the book.

H. Leffers

Cell Growth and Apoptosis. A Practical Approach. Edited by G.P. Studzinski. IRL Press at Oxford University Press; Oxford, 1995. xxvi+269 pp. £27.50 (pb). ISBN 0-19-963568-4

In a recent 'News and Views' feature of *Nature* (376 (1995) 17), Whyte and Evan wrote: 'Only a three-year holiday on the Moon could excuse any biologist for not being aware that apoptosis, the innate programme by which cells commit suicide, is one of the hottest (and trendiest) pieces of modern biology'. As far as this citation is still true, the publication of a practical manual about apoptosis and

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related methodologies is good news for many biochemists and cell biologists. Apoptosis, also known as programmed cell death, is a ritualised suicide program, executed by an intrinsic and pre-existent molecular machinery present in every living cell. From one side, this form of altruistic sacrifice is critical for normal cell growth and tissue differentiation during development, cell renewal and whole-organ homeostasis. On the other side, malfunction of this process is in the basis of lymphoproliferative and autoimmune disorders, Alzheimer's disease and cancer cell proliferation. Therefore, apoptosis is worth to study from a basic biological point of view, but also from a biotechnological one and many pharmaceutical industries are currently designing and testing drugs to promote or inhibit apoptosis. From this perspective, it is easy to understand why it is becoming increasingly frequent that many biochemists and cell biologists working initially in different fields, eventually use one or another of these techniques. Hence, the publication of *Cell Growth and Apoptosis* in the well-known *Practical Approach Series*, should be initially welcome.

The book consists of 13 chapters, each consisting of around 20 pages. There are 10 chapters describing general methods to study cell proliferation and cell death by means of biochemical, flow cytometric and morphological criteria: 'Measuring parameters of growth', 'Cell cycle analysis by flow cytometry', 'Analysis of flow cytometric DNA histograms', 'Determination of the cell proliferative fraction in human tumours', 'Chromosome analysis', 'Assessment of DNA damage by filter elution', 'Morphological and biochemical criteria of apoptosis', 'Analysis of cell death by flow cytometry', 'Assays of cell growth and cytotoxicity', 'Growth and activation of human leukemic cells', as well as three more specialised chapters. As usually in this series, there is a brief introduction in each chapter, followed by detailed in-box methodological protocols, providing in general enough information to complete successfully the work at the bench.

The main methods for the study of cell proliferation, namely flow cytometry analysis with BrdUrd, evaluation of tritiated thymidine incorporation and the most popular dye binding assays (MTT and Neutral Red), are well described. Specially complete and interesting are the chapters dedicated to apoptosis detection by flow cytometric and fluorescence microscopy analysis, including the propidium iodide exclusion test combined with uptake of rhodamine-123 and hydrolysis of fluorescein diacetate, or followed by counterstaining with Hoestch 33342, staining of DNA with DAPI, BrdUrd pulse-labelling, etc. It could be also interesting to have included the labelling with *p*-phenylenediamine as an alternative stain for the morphological evaluation of chromatin condensation and nuclear fragmentation. Although the use of propidium iodide gives comparable results, *p*-phenylenediamine staining can be visualised using the most common filter assembly used in fluorescence microscopy, that employed for FITC. One useful and very popular method for the in situ detection of the DNA fragmentation that accompanies apoptosis, the TUNEL technique, is well described for the case of fixed cells and tissues by light microscopy. However, there is no mention to the adaptation of this technique to flow cytometry analysis. Other recent method for the early detection of cells committed to apoptosis by flow cytometry, the labelling with annexin-V-FITC, is also lacking.

The chapter dedicated to the methods of analysis of DNA fragmentation is easy to follow, comprehensive and well written. It includes ready-to-use protocols for DNA extraction, analysis of low- or high-molecular-weight DNA fragments, analysis of nucleosomal DNA fragments by agarose gel electrophoresis ('ladder fingerprint'), methodologies to distinguish high- and low-molecular-weight DNA fragments such as pulsed field electrophoresis, etc.

The subject of cell-mediated cytotoxicity is important enough to have merited an entire chapter. Instead of this, the subject is only deal with as part of the chapter on growth of leukaemic cells. The methods for this type of apoptosis induction should be often different from those mentioned before because of the problem of having at least two types of cells mixed: the effector cells that kill and do not die, and the target cells that are killed. There is some mention to those methods in the last part of the chapter by Daniela Santoli, referring to one of the most widely used methods, ^{51}Cr-release from labelled target cells. Anyway, ^{51}Cr-release by itself does not distinguish between a necrotic cell death induced, for example, by added perforin, or an apoptotic cell death induced by granzymes or FasL. However, there is no allusion to other widely used method, ^{125}I-deoxyuridine release from target cells, that shows DNA fragmentation and, hence, more specifically recognises apoptotic cell death induced by effector cells. Such a chapter should include a brief general overview on immunological aspects of cell-mediated cytotoxicity, including the main pathways involved, namely perforin/granzymes-, Fas- and TNF-based cytotoxicity.

There are also other significant drawbacks, as it is difficult to prevent in multi-authored technical manuals. The information provided in some chapters is not very up-to-date. For instance, the first chapter in the book has been reprinted from a previous title in the series (*Cell Growth and Division*, 1989) as it becomes evident from the reading of list of references, the more recent dating from 1988. Some of the methods are repeated several times throughout the book, while other recent techniques are missed, as exemplified by the cases of TUNEL and annexin V. The list of suppliers do not include FAX numbers, postal or E-mail addresses, limiting severely their usefulness. The subject index is too concise and so it misses several entries that would have facilitate the location of information.

In spite of the mentioned limitations, the book is very readable, and, from the point of view of the quality/price ratio, is a good value for money. This manual will be undoubtedly very useful to many scientists that sooner or later will finish to work in apoptosis, even if their initial aims were to work in cell proliferation. It is becoming clear that life and death belong essentially to the same circle, as Taoists evidently knew from a long time ago.

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PRINS and in situ PCR Protocols. Methods in Molecular Biology, Vol. 71; Edited by J.R. Gosden, The Humana Press; Totowa, 1996. xiii+165 pp. $59.50 (pb). ISBN 0-896-03395-3

PRINS is a technique for the detection of specific DNA (and RNA) sequences in situ, first described by myself a decade ago. The special thing about PRINS is that it works with unlabeled probes which upon hybridization primes the synthesis of labeled DNA at sites recognized by the probe. The advantage of this approach is that short (oligonucleotide) probes produce as much labeling as larger (cloned) probes do. The use of unlabeled probes further makes it possible to work with high concentrations of probe, efficiently saturating potential binding sites in much shorter incubations than is used for FISH. These characteristics of the technique makes it especially suited for work with oligonucleotide probes, and for combination with other techniques such as immunostaining. So far PRINS has mostly been used for the detection of tandem (and dispersed) repeat sequences in various genomes, and seems outstanding for this purpose. Detection of single copy sequences has been frustratingly unsuccessful, and it seems doubtful if PRINS will ever be brought to work well for this purpose. After some encouraging first results, detection of RNA in situ by PRINS has also been by and large unsuccessful.

In situ PCR, first described and patented by Gerard Nuovo, is not truly an independent technique but merely a hybrid between PRINS and PCR and should rather be referred to as PRINS-PCR. After the first reports by Dr. Nuovo, provoking much interest in the approach, a lot of money and effort has been put into developing this version of the PRINS; in fact far more than in the true PRINS itself. Despite this, results have not been overly good, and the approach has constantly been plagued by false-positive reactions (though not always recognized as such) and poor localization of signals. I think that it is fair to say that in situ PCR now is a well-established technique for the pre-amplification of targets (e.g. viruses) within whole cells, such that the presence of these targets can be more efficiently established by

detection with a second technique (e.g. FISH), than would be possible without pre-amplification. By contrast, in situ PCR is not well suited as a stand-alone technique or for the fine structural localization of targets (e.g. loci in chromosomes).

John Gosden's book includes chapters written by most of the major contributors to the development of PRINS and in situ PCR (or PRINS-PCR). Those absent (including Dr. Nuovo and myself) are not really missed from this splendid little book which covers the field quite well. The only exception from this rule is Dr. Abbo, who has done some good work on plant chromosomes, a subject completely missing from the book. As a whole the book provides a richness of protocols and examples of applications, making it a good starting point for anybody considering to start working with these techniques (though I wonder why the color plates have been placed in the middle of Chapter 11 (?)).

Chapters 1 to 3 of the book deals with the most widely used application of PRINS: stand-alone detection of specific DNA sequences in mammalian metaphase chromosomes. While there is no real news in these chapters, they do serve as a useful introduction to the subject.

Chapter 4 deals with an interesting new application of PRINS developed by Franck Pellestor and colleagues in Montpellier, namely the detection of target sequences in sperm cells (and embryos). The results obtained by Dr. Pellestor are impressive, and I can highly recommend this chapter as well as Dr. Pellestors papers on the matter, to anyone interested in this subject.

Chapter 5 deals with the detection of target sequences in frozen tissue sections, an application that seems almost as straight forward to work with as PRINS on metaphase chromosomes, judging from this chapter.

Chapter 6 deals with the multicolor detection of multiple targets by PRINS. Multi(color) PRINS differs from multicolor FISH in that each probe has to be added in a separate reaction. That does mean more work than if the probes could all be applied together, but also offers the possibility of combining probes with widely different hybridization optimums (e.g. an oligonucleotide and a cloned probe), and if the number of probes is not more than two to three, the work load is not excessive as PRINS itself is faster and less laborious than FISH. Combinations of PRINS and FISH can be immediately derived from the multicolor PRINS protocol given in this chapter, by simply adding a FISH on top of the first PRINS, rather than secondary PRINS(es). At this point I would like to add that a multitude of publications on PRINS/PRINS and PRINS/FISH are around.

Chapter 7 deals with PRINS on extended chromatin. An interesting application, but unfortunately it does not really appear from this chapter how sensitive PRINS is for this purpose relative to FISH. Intuitively one would assume PRINS to be especially suited for the purpose, but that may not have been proven in practice as yet (?).

Chapters 8 and 9 deal with the combination of PRINS and immunostaining. This is a subject that has received surprisingly little attention, considering that it may be one of the most promising applications of PRINS, and an application where PRINS is strongly prefer to FISH. Apart from the work done by the authors of these chapters and some unpublished work of my own I do not know of any work on the subject. Hopefully this publication can help change that.

Chapter 10 deals with the detection of single copy sequences in the porcine genome by what I prefer to call PRINS-PCR. The work by Troyer and co-workers has been around for a while, and I still wonder if they have a true PCR-type reaction occurring in situ. At least their results look more like the results we get with linear amplification, than like the results we get with exponential amplification. (The same could be said about all other successful locus specific PRINS-PCR amplifications I know of.)

The remaining six chapters all deals with various aspects of in situ PCR. They all seem quite good and written by authors who have learned not to trust in situ PCR without the proper controls (these were sadly missing from the first reports on the approach, which may have been based on false-positive reactions). I would, however, like to point to one of the chapters, namely Chapter 16, which is a general review of in situ PCR written by Aidan Long and Paul Komminoth. It is by far the best review of the approach I have yet seen and should be mandatory reading for anyone intending to try in situ PCR.

J. Koch

Exquisite Specificity. The Monoclonal Antibody Revolution. Edited by A. Cambrosio and P. Keating. Oxford University Press; Oxford, 1996. xv+243 pp. £39.50 (hc). ISBN 0-19-509741-6

This is NOT an updated handbook on improved protocols for the production of monoclonal antibodies (mAb) nor an illustrative description of the most recent and cutting-edge applications of this fundamental technology. Rather, this IS an extremely interesting, thoughtful and philosophical analysis of what converts pure science into generic technology producing the foundations for a highly successful biotechnological industry.

The authors, sociologists and historians of the scientific process by profession, describe 20 years of mAb technology starting from the initial 1975 *Nature* publication by Kohler and Milstein. They demonstrate a sensitive and insightful perspective not only in factual historical review and methodological detail but impressive appreciation for the art and craftsmanship required in producing and using mAbs as research tools or diagnostic reagents of commercial value.

The preface opens with Kuhn's 'The Structure of Scientific Revolutions' and develops such dichotomies as academia/industry, science/technology and discovery/invention as the background for the chapters to come. Five chapters take the reader from: (1) the elements of the hybridoma discovery, (2) the art of (re)-producing mAbs, (3) the factors that allowed or caused the diffusion of this technology, (4) two detailed discussions of selected cases in point followed by (5) a critical review of the patent history and status of mAbs. Each chapter closes with concluding remarks and detailed notes complementing the preceding text. The book ends in a short epilogue and detailed, comprehensive list of references and an index.

Some highlights include the critical review of the 'state of the art' and competing groups working in this field in the beginning of the 1970s. Clearly the original Kohler and Milstein paper was not intended to describe the development of a novel tool for the production of mAbs as an independent goal. Milstein was motivated to elucidate the mechanisms of the genetic control of antibody diversity and employed such existing methodologies as Sendai virus induced cell fusion as means to dissect the intricacies of the system he investigated. Thus one is led to ask what was the novelty of the Milstein laboratory when one considers the ongoing work of Koprowski and Rajewsky for example. The pivotal contribution of the Herzenbergs to the diffusion of mAb technology as a tool is most suitably described. Thus the co-evaluation of mAbs, on the one hand, with the development of FACScan and characterization of lymphocyte subtypes are depicted as a motivating force that was central to the dissipation of the concept that hybridoma technology was fundamental to a thriving new industry.

The book provides a foreword written by Cesar Milstein himself adding both personal flare and credibility to the authors' version they so meticulously describe in a remarkably readable form.

The book is a unique philosophical study of the makings of the modern scientific enterprise and its place in our society.

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PCR Sequencing Protocols. Methods in Molecular Biology, Vol. 65. Edited by R. Rapley, The Humana Press; Totowa, 1996. xi+221 pp. $74.50 (pb). ISBN 0-89603-344-9

This new volume in the now extensive series on *Methods in Molecular Biology* aims and claims to provide a complete collection of successful techniques for the sequencing of PCR products for both novice and advanced investigators.

The aim is reasonable but the claim may be excessive. Unfortunately for this mostly excellent manual, the uninitiated novice may be deterred by a title that suggests an exponential amplification of ordered protocols to achieve the same goal and a table of contents that emphasizes the contributors rather than the titles of each chapter. The value to the novice would have been improved by the addition of an overview of the sequencing methods described in the manual, in order to provide some basis for selection of one protocol over another and some balance to their applications. Admittedly the individual chapters go some way towards providing this information in their introductions but an overview would have been better and would also have improved the distinction between the protocols within the three broad areas referred to in the preface.

This criticism aside, *PCR Sequencing Protocols* is essentially a practical text. In that this text is not designed to educate the reader on any type of theory, but it is simply a protocol manual, it actually targets the assisted novice and advanced investigator. It starts with the very basic from how to make a sequencing gel and proceeds to encompass numerous methods, both radioactive and non-radioactive, for sequencing PCR products. Also included is a section on cloning PCR products into M13 vectors. In this section there is no mention of the fact that it is often far easier to simply use a PCR cloning kit which can be purchased from a number of suppliers.

Overall, the individual chapters and protocols are very well laid out, with the same outline for each chapter. A short introduction for the rationale of the particular method is described, followed by a comprehensive list of materials and equipment, often with a list of suppliers. The latter is a very useful practical detail. The protocol itself is provided in detail that is easy to follow and should be straight forward for most beginners. The notes section is extremely helpful and distinguishes this as laboratory manual that belongs on the bench from a reference that belongs on the shelf. This section gives safety warnings and precautionary measures, reasons why a certain chemical or method was used, helpful hints and troubleshooting. Although this manual could not be criticized as a mere cookbook, this section of one protocol even allows itemized assessment of the value of a salad spinner over a microcentrifuge!

In summary, this is a good collection of well presented PCR protocols that should find its way into many laboratories. Certainly if you are planning on performing a large amount of PCR sequencing, or have been having problems sequencing PCR products, this book has a procedure or advice that will help.

Kate Hole
Peter Watson

Eukaryotic Gene Transcription. Edited by S. Goodbourn, IRL Press; Oxford, 1996. xvi+292 pp. £29.50 (pb). ISBN 019-9634866

The regulation of gene transcription is widely recognized as a fundamental regulatory mechanism for how control of cell proliferation is achieved. In particular researchers have focused on a group of proteins called transcription factors, whose regulatory role for the initiation of transcription has been firmly established in the last two decades. In a new book in the *Frontiers in Molecular Biology* series from Oxford University Press, the editor has asked several researchers working with regulation of gene expression to review the underlying principles of transcriptional control in the system they are experts in. The book is divided into nine chapters that focus on basic transcription (RNA polymerase II dependent transcription), the role of chromatin in transcription, transcription activated by signaling pathways, also called 'activated transcription' (e.g. CREM, REL, Octamers, c-Fos, STATs), the involvement of transcription in development (homeodomains in *Drosophila*), differentiation (skeletal myogenesis), and cell cycle control (cdc10 in *Schizosaccharomyces pombe*, SWI-MBP in *Saccharomyces cerevisiae*, and E2F in mammalian cells). A final chapter is devoted to the role of the HIV TAT protein in transcriptional elongation.

The chapters are in general very well written containing illustrative figures and a tremendous amount of useful references to the primary literature for further study. As such this book is therefore valuable for molecular biologists working on gene control or others who want to get an extensive introduction into transcriptional control. Due to the detailed level of description, this book cannot, however, be recommended as a text book for biochemistry or biology students. Furthermore, despite this book is very much up to date in this rapidly moving field of molecular biology, it does not contain references to the primary literature published in 1996. Thus, such a book will never be able to compete with the short reviews published in various journals, it may, however, find some value as a reference book for researchers working on transcriptional regulation.

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Gene Probes 1. A Practical Approach. Edited by B.D. Hames and S.J. Higgins. Oxford University Press; Oxford, New York, 1995. xvi+224 pp. £27.50 (pb). ISBN 0-19-963400-9

Important to much research in today's life sciences is the detection of specific genes and gene products. Methods for such ventures very often involve use of nucleic acid probes complementary to specific DNA/RNA sequences or use of antibodies raised to recognize proteins of interest. This book is one of two companion volumes, together constituting an expanded and revised second edition to *Nucleic Acid Hybridization: A Practical Approach* published in 1985. The present volume *Gene Probes 1* covers the preparation of DNA probes, riboprobes, oligonucleotide probes and antibodies. The second volume *Gene Probes 2* focus on the application of each type of probes for genetic manipulation and analysis of genes.

Chapter 1 of *Gene Probes 1* entitled 'Strategies for using gene probes', addresses the fundamental question: which type of nucleotide probe is the most suitable for my application. The main types of probes and labelling techniques are presented and, for each type, advantages and disadvantages concerning their production, use, and performance are discussed. The chapter is very recommendable and useful, especially to newcomers in the field, but perhaps also to more established researchers who may be inspired to try new types of probes.

The succeeding six chapters describe in detail the production of the different types of nucleic acid probes — Chapter 2: 'Preparation of DNA for use as probes'; Chapter 3: 'DNA radiolabelling and detection'; Chapter 4: 'Non-radioactive labelling and detection'; Chapter 5: 'Preparation of synthetic oligodeoxy nucleotide probes'; Chapter 6: 'Probe preparation by the polymerase chain reaction'; Chapter 7: 'Synthesis of riboprobes'. The last chapter (Chapter 8: 'Antibody probes') deals with production of antibodies using synthetic peptide sequences or recombinant proteins as immunogenes. The motivation for including in the book this chapter dealing with methods belonging

to a different discipline is the usefulness of antibodies in the study of gene expression. However, this is a big task to cover in only one chapter (34 pp.), and consequently, it constitute merely an introduction to the subject. The book also contains an appendix listing commercially available kits for non-radioactive labelling of nucleic acid probes. Each chapter contains an excellent mixture of theoretical considerations, useful guidance, and practical advice together with step-by-step protocols. In general, the book is well balanced, offering an abundance of information relevant to most readers. A few sections describing very specialized techniques seems, however, to be out of scope. It is not likely, for example, that any reader will benefit from reading 'A practical guide to automated DNA synthesis' (in Chapter 5). The few laboratories today that have a DNA synthesizer running are of course fully aware of how to use it. Thus, instead of reminding readers who actually operate a DNA synthesizer to check for leaks and the reagent level, etc., it would have been more relevant to concentrate on the design, labelling, and perhaps purification of oligonucleotide probes.

In conclusion, this laboratory manual offers valuable guidance in the choice of type and production of nucleic acid probes. Thus, it is well worth consulting for anyone who is using gene probes in their work.

David M. Hougaard

Booklist no. 137 May 1997

1. Becker, R. and Giacobini, E. (eds.), Alzheimer Disease: from Molecular Biology to Therapy. Birkhauser; Basel Boston Berlin, 1996. xiv+613 pp. DM 162.00 (hc).
2. Teicher, B.A. (ed.), Cancer Therapeutics. Experimental and Clinical Agents. The Humana Press, Totowa, 1996. xii+451 pp. $125.00 (hc).
3. Hanessian, S. (ed.), Preparative Carbohydrate Chemistry. Marcel Dekker; New York, 1996. xiii+648 pp. $150.00 (hc).
4. Kuter, D.J., Hunt, P., Sheridan, W. and Zucker-Franklin (eds.), Thrombopoiesis and Thrombopoietins. Molecular, Cellular, Preclinical and Clinical Biology. The Humana Press; Totowa, 1996. xviii+412 pp. $150.00 (hc).
5. Swindell, S.R. (ed.), Sequence Data Analysis Guidebook. Methods in Molecular Biology. Vol. 70. The Humana Press; Totowa, 1997. viii+324 pp. $69.50 (hc).
6. Brooks, S.A., Leathem, A.J.C. and Schumacher, U. (eds.), Lectin Histochemistry. a Concise Practical Handbook. BIOS Scientific Publishers; Oxford, 1996. xiii+177 pp. 39.95 (pb).
7. Scott, T.A. and Mercer, E.I. (eds.), Concise Encyclopedia. Biochemistry and Molecular Biology. 3rd edn., de Gruyter; Berlin, New York, 1997. 737 pp. DM 168.00 (hc).
8. Clark, M.S. (ed.), Plant Molecular Biology. a Laboratory Manual. Springer; Berlin, Heidelberg, New York, 1997. xxix+529 pp. DM 120.00 (pb).
9. Holtje, H.-D. and Folkers, G. (eds.), Molecular Modeling. Basic Principles and Applications. VCH; Weinheim, New York, 1996. xii+194 pp. DM 198.00 (hc).
10. Bickerstaff, G.F. (ed.), Immobilization of Enzymes and Cells. Methods in Biotechnology. Vol. 1, The Humana Press; Totowa, 1997. xiv+367 pp. $79.50 (hc).
11. Kastan, M.B. (ed.), Genetic Instability and Tumorigenesis. Springer; Berlin, Heidelberg, New York, 1997. 180 pp. DM 173.00 (hc).
12. Capre, D.J. (ed.), Antibody Engineering. Karger; Basel, 1997. xii+212 pp. DM 269.00 (hc).

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No. 123 (March, 1995) FEBS Lett. 361, 133.
No. 124 (April, 1995) FEBS Lett. 363, 209.
No. 125 (August, 1995) FEBS Lett. 369, 351.
No. 126 (September, 1995) FEBS Lett. 371, 355.
No. 127 (November, 1995) FEBS Lett. 375, 315.
No. 128 (December, 1995) FEBS Lett. 377, 284.
No. 129 (January, 1996) FEBS Lett. 379, 200.
No. 130 (March, 1996) FEBS Lett. 381, 266.
No. 131 (April, 1996) FEBS Lett. 384, 300.
No. 132 (May, 1996) FEBS Lett. 388, 88.
No. 133 (July, 1996) FEBS Lett. 392, 204.
No. 134 (August, 1996) FEBS Lett. 393, 326.
No. 135 (December, 1996) FEBS Lett. 398, 341.
No. 136 (February, 1997) FEBS Lett. 403, 108.