

Book reviews

Molecular Methods for Virus Detection. Wiedbrauk D L, Farkas D H, eds. (£46.00.) Academic Press. 1995. ISBN 012 748920 7.

PCR: Protocols for Diagnosis of Human and Animal Viruses. Becker Y, Darai G, eds. (DM168.00.) Springer Verlag. 1995. ISBN 354 058899 X.

Molecular methods for virus detection has an all American cast and only an occasional reference from beyond those shores. One of the interesting features is the author list and the numbers of individuals who manage to undertake their research and development of molecular methods within private and profit making institutions. It is this expansion of molecular methods that has fuelled the biotechnology industry and now provides a powerful diagnostic arm for virologists.

A number of us who have become partly conversant with enzyme and DNA technology look for reliable recipe books for the laboratory. Recent requirements in the United Kingdom for laboratory accreditation have encouraged formal recording of results in the virology laboratory. Indeed, many techniques that have been passed from senior to junior technicians over several generations is formalised as methodology on every bench. This book supplies basic and well described formal methods and those who wish to be more creative may mix and develop from these protocols. There is enough insight into the techniques both to stimulate interest in the underlying mechanisms involved and to meet one's own requirements.

The book covers all basic nucleic acid detection techniques in an interesting first chapter. The second chapter addresses the problems of quality assurance: which is a constant worry in a diagnostic laboratory and one that enters a new dimension with the exquisitely sensitive amplification techniques that we have to hand. There are a number of overviews within the chapters which are especially valuable for those of us who move from laboratory to clinic and back again. These demonstrate the value of frequently revising and updating our techniques.

One chapter describing the technique proposed for assessing antiviral susceptibility in a wild virus isolate was of particular interest. The "prophets of doom" tell us that we will see an escalation in antiviral drug resistance with the increasing use of virus directed pharmaceuticals. Many of us may see this in the (at least) hundreds of distraught young people who will be afflicted with drug resistant genital herpes. They may no longer achieve remission and relief from the excellent antiherpes drugs currently available. The technique proposed in this chapter marries a home-grown and well established plaque assay with a commercial kit assaying antiviral susceptibility with a DNA/DNA hybridisation. I am slightly worried about the use of a radioactive probe in the technique recommended: surely we may move on from this marker? While the method proposed for a commercial kit evaluation of viral sensitivity (they supply even the cells in the United States) is interesting, comments in the proce-

dural notes leave me uneasy: "If the virus inoculum is too weak (and) too much time is required to achieve the appropriate CPE (then) the antiviral agent may overwhelm the isolate, giving a false impression of the effectiveness of the drug." The reader should consider this carefully. The logic used is a bit shaky. Do we have a resistant isolate or are we selecting even as we culture in vitro?

In the chapter on in situ PCR there are good instructions for a technique which we are finding increasingly useful, especially for unexplained pathology where tissue is available. The demonstration of viral nucleic acid within a cell is support for a theory of viral pathology. But each case should be interpreted with caution. We carry many viral passengers, sometimes for life, and others for a short time. One PCR followed by a hybridisation in situ does not confirm a cause and effect diagnosis; it merely tips the balance of evidence. I have to admit a certain worry about the descriptions under the black and white photomicrographs of autoradiographs within the chapter which look less selective and convincing than the captions would have us believe.

It is a book to stimulate interest and, I suspect, will be a primer for laboratory staff at all levels. I would not recommend it as a sole book on molecular techniques but as one of several good reference guides and a constantly available reminder about the underlying mechanisms that we are addressing. Making things work in the laboratory is one pleasure; developing mechanisms and teasing away at the methods for refinement and the creation of new techniques is another.

PCR: protocols for diagnosis of human and animal viruses is a manual which enters a different dimension from the previous book. It comes with its own MS-DOS disk (although my fear of virus infection has prevented me loading it until my Dr Solomon's virus checker is updated). Part 1, as the preface tells us, contains 49 useful protocols in 13 sections which deal with the diagnosis and typing of disease causing viruses in humans. The 12 chapters of part II deal with viruses from animals which cause disease. Spumaviruses are not the everyday story of (even) country folk and their role in the aetiology of human disease is not, to my knowledge, certain, although a number of aetiological associations have been suggested; these include Graves' disease, kidney disease, and encephalopathy and myasthenia gravis. This is a very well researched, fascinating, and useful book for all of us who seek to use and develop modern technology and science for diagnostic purposes. However, I detect that there has been no close liaison between the scientist and the clinician in formulating this published material. The physician quickly becomes sceptical when the scientist is seen to sell his expertise but lacks the particular diagnostic perspective that years of grinding through outpatient clinic provides. Nonetheless, it provides a stimulus. It contains a description of applying PCR to poorly diagnosed but common illnesses such as influenza, respiratory syncytial virus, and even Rhinoviruses. Whether a diagnosis of *Molluscum contagiosum* by PCR is ever necessary seems doubtful as it is clinically obvious in its effects. Furthermore, the sequencing for smallpox and of primers for PCR will I hope always be an academic exercise. All the chapters on animal viruses are interesting, although I wonder whether the sales team who allowed this juxtaposition thought the world

to be filled with virologists with such refreshingly broad interests? I wonder for whom this book is written. Smallpox (chapter 33) will, we hope, remain historical but hanta virus and the pulmonary syndrome in the USA (chapter 45) was an exercise in diagnosis and cooperation with good laboratory techniques, sound epidemiology, and inquisitive physicians from which we all may learn. I will want to own this book for the insight that all this excellent information provides.

COLIN G FINK

Molecular Diagnostics for the Clinical Laboratorian. Coleman W B, Tsongalis G J, eds. (Pp 390; £60.00.) Humana Press. 1996. ISBN 089 603373 2.

This multi-author text consists of four sections that: introduce molecular biological principles; describe the basic molecular techniques applicable to laboratory medicine; discuss application of these techniques to clinical problems; and assess the routine laboratory implementation of such technology. One useful aspect of this structure is the inclusion of a wide range of techniques, together with the principles of molecular biology, in one volume specifically designed for clinical molecular diagnostics. However, it is inconsistent in places, with some chapters representing overviews of technical principles and others including practical protocols. Moreover, the protocols that are included are incomplete, assuming some degree of knowledge of the procedures involved. Although to some extent sacrificing depth for breadth, the chapters addressing clinical application of the techniques described are useful as they are generally restricted to abnormalities of clinical relevance.

Given the assumption that this book was not intended as a practical manual, and in view of the editors' stated wish particularly to address the interpretation and limitations of molecular diagnostic results, this text gives a good theoretical background for those with little experience in this field. It is readable, comprehensive, and relatively up-to-date with some references from 1996. However, those directly involved in molecular diagnostics are likely to require a supplementary practical manual.

C S HERRINGTON

Molecular Biology of Cancer. Macdonald F, Ford C H F. (Pp 218; £19.95.) BIOS Scientific Publishers Ltd. 1996. ISBN 185 996225 4.

This book is an overview of the molecular events involved in the process of tumour development. As such, it is competing in a market awash with similar texts designed to make some sense of the morass of information available to those interested or involved in this field. In this regard, the book succeeds, largely as a result of the way in which it is structured. The initial section, dealing with general principles, gives a distillation of the basic information required to understand the second section, which comprises specific chapters dealing with oncogenes, tumour suppressor genes, and the cell cycle control molecules and mismatch repair genes. However, it is not essential to read and assimilate all of this information to be able to understand the chapters in the third and fourth sections that deal with specific tumour types and possible clinical molecular strategies. Thus, it is possible to take from the

book what is required to answer specific questions about individual tumour types, while having the detailed background information available if required. Perhaps more importantly, this structure is achieved without detriment to the content, as the information presented is clear and up-to-date with many references from 1996. Finally, for both those unfamiliar with the field and those who have fallen behind in their reading, this book provides an excellent place to start.

C S HERRINGTON

Stress-Inducible Cellular Responses.

Feige U, Morimoto R I, Yahara I, Polla B S, eds. (DM198.00, sFr178.00.) Birkhauser Verlag. 1996. ISBN 376 435205 1.

The cover of this book states: "... intended for every stress laboratory as a source of knowledge and perspectives," and that sums it up precisely. The book is a comprehensive, in-depth volume covering aspects of cell stress from toxic metal responses to protein folding in the endoplasmic reticulum. The in-depth nature of the chapters and the lack of many diagrams makes this a serious read for those involved in areas of, or closely allied to, the heat shock response. Those who work through the chapters will, however, be rewarded by articles of quality written by many of the experts in this field of research.

The book is divided into five parts covering: functions of stress proteins in unstressed cells (normal folding, translocation, receptors, and protein breakdown); regulation of inducible stress responses (methods of sensing cell stress, effect of heat shock on enzyme activities, and SOS response to DNA damage); cellular responses to specific stresses (UV activation of stress proteins, signalling events that control the stress response, and toxic metal responsive transcription); paradigms for complex stress responses (including viral infection, inflammation, and aging); and applications of stress responses in toxicology and pharmacology. The final chapter includes articles on stress

proteins as biomarkers for environmental toxicology and the use of heat shock proteins as immunological carriers and vaccines.

The comprehensive scope of the articles in this volume will result in queues for this book at most university libraries as soon as dissertations are requested on any topic relating to heat shock.

R J MAYER

Monoclonal Antibodies: Principles and Practise. 3rd ed. Goding J W. (Pp 492; £29.50.) Academic Press. 1996. ISBN 012 287023 9.

I welcomed the first edition of this text, immediately purchased the second (1986, 315 pages) but am disappointed by the limited coverage of the third (492 pages). The first and second editions were entirely concerned with mouse monoclonal antibodies, however, the decade between the second and third editions has seen a major broadening of techniques for producing monoclonal antibodies—for example, human-mouse heterohybridomas and phage display libraries, that are not given due weight in this volume. The author acknowledges this to some extent in his introduction stating "the advantages of a single author book... may soon be outweighed by the logistical impossibility of one individual covering all of the necessary areas". Another strength of earlier editions is diluted by the authors admission that "my ability to speak from hands-on experience is less than it used to be".

The expansion of the volume is due to the inclusion of six chapters of basic immunology (115 pages), and the addition of a chapter on immunohistology (20 pages). Personally, I doubt whether this volume would be purchased by any institution or individual who did not already have at least one or more basic texts available and known to them. In short, therefore, the argument for up-dating is slim, but affordable at £29.50.

R JEFFERIS

Path-cyclopedia (CD-ROM; Mac/Windows versions). (\$295.00, residents; \$495.00, individuals; \$695.00, institutions.) Lippincott-Raven. 1996.

Having invested a considerable sum of money on the "hard copy" version of this book and found it most useful, I was intrigued to investigate the relative utility of the CD-ROM equivalent. It certainly weighs much less! Both the Mac and PC versions require 8 Mb of RAM and 11 Mb (PC) or 8 Mb (MAC) of free hard disk space.

The reader may wonder why I am reviewing a disk that, in its conventional form, is entitled *Diagnostic surgical pathology*. The encouraging fact is that, as both a diagnostic and research pathologist, I find the book and disk most stimulating in that molecular considerations lie in the text almost as a matter of course, reminiscent of the inclusion of immunocytochemical data in groundbreaking diagnostic texts 15 years ago.

Certainly, the quality of production of the CD-ROM reflects the beauty of its mother book and the similar price seems reasonable in relation to the present market. Why should I buy the disk rather than the book? There are two main reasons. First, the ease of cross-referencing is the forte of CD-ROMs, and in a massive body of information such as this, that is of great importance. Second, the disk version comes with a Medline search facility and, as a further bonus, the contents of *Diagnostic Molecular Pathology*, *Applied Immunohistochemistry*, and the *American Journal of Dermatopathology*. What more could a histopathologist want? Furthermore, updates are promised.

In conclusion, I cannot recommend this CD-ROM strongly enough. It may not so readily fall into my hands as the paper version but will inevitably, because of its medium, lead me into many side-tracked diversions as I work my way through the cross-referencing. I only hope that I learn as I go along! Perhaps I now need a powerful lap-top.

J CROCKER



Molecular Biology of Cancer

C S Herrington

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