Book reviews

RNA Methodologies: A Laboratory Guide for Isolation and Characterization. Robert E. Farrell, Jr. Academic Press (Harcourt Brace), London. 1993. Pp. 317. Price £39.00, comb-bound. ISBN 0 12 249700 7.

This book is, according to its author, a “collection of RNA isolation strategies and protocols” presented “in a coherent start to finish format”, and it does indeed present many protocols and strategies. As such it is a useful aid for anyone needing to modify a protocol already in use or for a researcher new to RNA work.

The book is structured in a coherent manner, working logically through from ‘what is RNA?’ to ‘how to get hold of it’ and on to ‘what to do with it now?’ The book begins with an overview of the structure and function of RNA, which is clearly presented and explained. This is useful not only to those new to the subject but also as a speedy and easily accessible refresher for those momentarily forgotten facts! The stability of mRNA and the various levels of regulation to which it is subject are covered comprehensively, and there is a useful chapter devoted entirely to resilient ribonucleases, the problems associated with them and the various strategies which can be employed to eliminate them.

As the book unfolds, more than a dozen isolation strategies are presented for both total RNA and polyadenylated RNA. The rationale behind each procedure is clearly defined and the protocols are presented in some detail and with great clarity, although the constant exhortation to wear gloves can be rather wearing. The author then goes on to consider the analysis of isolated RNA, with chapters dedicated to electrophoresis, Northern blotting, nucleic acid probes and hybridization, detection and quantitation of RNA. Comprehensive references are included at the end of each chapter and these should ensure easy accessibility of the original protocols, should this be required. The book also contains appendices with details of how to prepare some of the reagents commonly required for RNA extraction, which is certainly an added bonus for those unfamiliar with this kind of work.

In general, this is a book which claims to be written for “anyone capable of conducting basic research” and, as a researcher new to RNA work, I am happy to say that it found its target. Certainly, it helped to clarify a number of basic points which could otherwise have easily been missed, and it proved to be extremely useful as a starting point from which to begin further research on the various protocols. Its only major drawback is the somewhat exorbitant price tag of £39.00, which would certainly be enough to deter me from buying it solely for myself. It would be very useful if bought for a whole team or laboratory to use, and the cost could be justified in this way.

On the whole, I found this book very useful and would certainly recommend others who are either contemplating

starting RNA work or who want a reference manual to consider it carefully. However, if you intend to buy it for your sole use, you’re going to have to do an awful lot of RNA work to get your money’s worth!

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Our Genetic Future: the science and ethics of genetic technology. British Medical Association. Oxford University Press, Oxford. 1992. Pp. 263. Price £7.99, paperback. ISBN 0 19 286156 5.

This is an excellently written account of the major technical achievements of molecular genetics. Overall, it provides a balanced discussion of the ethical and social implications of current and future applications of molecular genetics for humans and other living organisms. The first eight chapters present an historical perspective and cover the main genetic modifications of plants, animals and humans. Each of these chapters is very clear but, collectively, they might have benefited from introductory paragraphs. The diagrams and figures are, however, a great aid to the uninitiated.

The objectives of the book are well defined in the overview and convincingly attained in the final chapter of summaries and conclusions. In general, explanations are easy to follow for the non-specialist. However, in chapter 2 there is no adequate definition of parental imprinting and the syndromes chosen by the authors to illustrate it are not particularly helpful. Another problem with this chapter is that there is no fluidity between the various sections, for example between those on the importance of sex and the chemistry and chemicals of life. Chapter 3 is a good primer in the logic and perspectives of molecular biology. It is aided by the use of good analogies to day-to-day activities and is well constructed throughout.

Chapter 4 focuses on techniques, and contains very useful metaphors such as the image of a bar code to describe genetic fingerprints. It also defines concepts which recur throughout the book, including the DNA probe and the idea of complementary base pairing. Chapter 5, on the modification of microorganisms, is well presented but lacks discussion and flair, whereas chapter 6 on the modification of plants, apart from some irrelevant detail, carries clear descriptions. One exception is the description of herbicide-resistant plants on page 91, which lacks sufficient detail to get the message across clearly. Some coverage of the underlying basis of the resistance would have helped. Chapters 7 and 8 give a balanced overview of transformation strategies

and point out the pros and cons of a number of manipulations, including germ-line and somatic cell gene therapy.

Chapters 9–15 are the real focus of the book and cover the social and ethical impact of the new technology. The laws, guidelines and regulations on this subject are exposed in chapter 9 which also highlights the differences between the regulations in the USA and Europe and the need for more uniformity in the application of these rules within the European Community. The pace of political change, however, makes the reference to Vice-President Quayle (regarding deregulation of biotechnology) rather outdated!

Chapters 10–13 are particularly useful and justify the cost of the book on their own. The implications of various current and potential genetic manipulations are systematically

dissected using language which is both direct and easy to follow. Chapter 14, however, on the human genome project is too long and detailed. The final chapter details the conclusions and recommendations of the British Medical Association and tackles each of the major areas of genetic manipulation in a clear and direct manner. In summary, this book is a must for all those interested in, or working in, the areas of biomedicine and genetics.

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Books received

Basic Human Genetics. E. J. Mange and A. P. Mange. W. H. Freeman, London. 1993. Pp. 491. Price £29.95, hardback. ISBN 0 87893 495 2.

Gene Regulation in Eukaryotes. Edgar Wingender. VCH, Weinheim. 1993. Pp. 430. Price £67.00, hardback. ISBN 3 527 28460 5.

Introduction to Molecular Cloning Techniques. G. Lucotte and F. Baneyx. VCH, Weinheim. 1993. Pp. 298. Price £32.50, hardback. ISBN 3 527 89613 9.

The Molecular Biology of Flowering. Brian R. Jordan (ed.). CAB International, Oxford. 1993. Pp. 272. Price £45.00, hardback. ISBN 0 85198 793 1.

Molecular Markers, Natural History and Evolution. John C. Avise. Chapman and Hall, London. 1993. Pp. 511. Price £75.00, hardback. ISBN 0 412 03771 8.

Nucleic Acids and Molecular Biology (7). Fritz Eckstein and David Lilley (eds). Springer-Verlag, Berlin. 1993. Pp. 341. Price £99.00, hardback. ISBN 3 540 56218 4.

Handbook of New Bacterial Systematics. M. Goodfellow and A. G. O'Donnell (eds). Academic Press (Harcourt Brace), London. 1993. Pp. 560. Price £80.00, hardback. ISBN 0 12 289672 6.

Pulsed Field Gel Electrophoresis: A Practical Guide. Bruce Birren and Eric Lai. Academic Press (Harcourt Brace), London. 1993. Pp. 253. Price £27.00, comb-bound. ISBN 0 12 101290 5.

Methods in Molecular Genetics Gene and Chromosome Analysis (Part A). Kenneth W. Adolph (ed.). Academic Press (Harcourt Brace), London. 1993. Pp. 404. Price £34.00, hardback, ISBN 0 12 044301 5.

Twins as a Tool of Behavioural Genetics Dahlem Workshop Reports (Life Sciences Research Report 53). T. J. Bouchard Jr. and P. Propping (eds). John Wiley, Chichester. 1993. Pp. 310. Price £60.00, hardback, ISBN 0 471 94174 3.