DNA cloning. All of this is put together by describing the cloning of haemoglobin genes. In a logical progression, the remaining chapters deal with the use of cloned genes to understand their structure, function and regulation of expression as well as disease. In these chapters the reader is introduced to introns, transposons, retroviruses, oncogenes and finally testing for genetic diseases, DNA fingerprinting and gene therapy. This is an impressive journey into the methodology and principles of biotechnology, for any 'curious' reader. The book ends with a list of additional reading and an extensive glossary that explains the molecular jargon.

The author should be congratulated for steering a clear path through many difficult concepts and intricate experimental protocols. He achieves this by the clever use of analogies and flow diagrams which aid in explaining the various techniques and the underlying principles upon which they are based. My favourites are on pages 16 and 261 where the appearance of DNA is described as a 'featureless piece of string' and a metaphase chromosome as 'a hot dog with a constriction'.

With regard to the level at which is pitched, the book will not teach anybody to carry out gene cloning and in this respect is no challenge to Sambrook *et al.* (1989) nor does it pretend to be. In the Preface the author states that it was written for science and non-science college students as well as a general public without prior knowledge of chemistry. I believe that the latter (general public) is a specially valuable niche in an era in which biotechnology, and the explosion of knowledge it brings, has the potential to touch all our lives. It could also be useful to some school teachers or pupils who are preparing to enrol on a university course, families struggling with genetic diseases, or any member of the legal and medical profession who may need to recommend or explain some forms of treatment and testing or to learn about genetic cloning and fingerprinting.

The reservations I have concern aspects of the book that might deter the casual reader, namely too many details, the price and the use of colour. Some details are not crucial for the understanding of DNA or cloning but are included, I suspect, for scientific completeness. For example, explaining the differences in translation between Prokaryotes and Eukaryotes (page 65) or the function of aminoacyl-tRNA synthetase (pages 66 and 67), etc. At this price (£19.99), the use of coloured diagrams may have made the book more attractive to the uninitiated reader.

Only a very brief mention is made of the economic, ethical and political aspects of the technology described. Some of these would have been worthy of greater consideration, as they are of great interest to the general public. The impact on society of gene therapy, transgenic organisms and genetic diagnosis, not least in predicting susceptibility to the late onset of acquired diseases, carries with it implications and responsibilities that cannot and should not be left entirely to the scientific community.

Yes, I think that this book should be read widely as a primer for some of the many promises and problems biotechnology will raise and, hopefully, in due course answer.

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Fingerprint Methods Based on Arbitrarily Primed PCR. Maria R. Micheli and Rodolfo Bova (eds). Springer-Verlag, Heidelberg. 1997. Pp. 441. Price DM 128.00, paperback. ISBN 3 540 61229 7.

Confused by RAPD, AP-PCR, DAF, ASAP, tecMAAP, AFLP, RAHM, RAMPO, DS-PCR, AS-PCR, SCAR, SRFA? You will learn from this book that they are all variants of MAAP, which presumably stands for Multiple Arbitrary Acronym Production. The first three are alternative brands of the same basic idea, and are covered exhaustively in this book. ASAP and tecMAAP are given a few pages each, but the rest get little more than a cursory nod. This is a pity in the case of AFLP, as this is a method whose fortunes seem to be rising.

The aim of these methods is to use the polymerase chain reaction (PCR) to amplify multiple DNA sequences of unknown origin from each of a large number of organisms, and hence reveal genetic differences that can be used for genetic mapping or diversity studies. Compared to the conventional use of PCR to target known genes, this approach is quick and dirty, and the macho acronyms seem somehow to reflect this. Perhaps the best known, and potentially the quickest and dirtiest, is RAPD. Hundreds of researchers saw it as a quick way to generate diversity data, but often found that the results were ambiguous and poorly reproducible. As Majerus *et al.* (1996) remarked 'Any scientist who understands the basis of RAPDs, and so potentially could use them in an informative way, would almost certainly know enough to avoid them like the plague!'

Micheli and Bova go a long way towards rehabilitating the reputation of these methods. The need to standardise DNA template preparation is repeatedly emphasized, and detailed protocols are given for a variety of organisms. With this attention to detail the methods need not be so dirty, but they are not so temptingly quick either. Nevertheless, they have been invaluable in generating useful genetic maps for many organisms, and have enjoyed some more limited success in analyses of natural genetic diversity. Detailed protocols and authoritative discussion of the important considerations, often written by the developers of the methods themselves, are an excellent feature of this

book. Anyone tempted to join the game should read this book first. In fact there is practical advice on plenty of associated molecular biology techniques as well: fluorescent detection, silver staining, DGGE, TSGE, dot-blots, cloning and sequencing, and there are case studies too.

All this is only half the story, though, because the second half of the book tackles a related approach applied to RNA, namely Differential Display. The same comprehensive approach is adopted here, with principles, protocols, troubleshooting, alternative strategies (including nonradioactive methods), affiliated techniques, and examples. It is questionable whether this will appeal to quite the same readership, though, and a pity that it will remain undiscoved by many who might benefit from it.

The DNA and RNA sections taken together provide an excellent guide to these 'arbitrary' methods, and the editors are to be congratulated on achieving a comprehensive set of contributions without excessive redundancy.

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