Book reviews

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Genome Analysis: a Practical Approach

Edited by K E Davies. (Pp 192; £27.00.) Oxford: IRL Press. 1988.

It may seem surprising so soon after the appearance of *Human Genetic Diseases*, also edited by Kay Davies, that another volume, *Genome Analysis*, is needed in the same series. However, every chapter covers most important new techniques which have already made a vast impact in the study of human genetic diseases. The topics covered are Mammalian genome transfer, Genome mapping by restriction finger printing, Pulse field gel electrophoresis, Chromosome jumping, Detection of single base changes in DNA, The polymerase chain reaction, DNA fingerprinting, and Mapping complex genetic traits. In all cases the authors are the leading workers in developing the techniques, and all of them have taken considerable time and care over their chapters.

The polymerase chain reaction has already had a profound influence in medical genetics, and indeed many of the other authors point out how it has influenced their work and their techniques. The chapter which is written by Erlich and his colleagues from the Cetus Corporation covers the basic principles of the techniques, but pays particular attention to methods for direct sequencing of enzymatically amplified DNA fragments. These protocols are not readily obtainable elsewhere.

The chapter on Pulsed field gel electrophoresis is written by Smith, Klco, and Cantor, who were the originators of the technique. It offers detailed protocols thoughtfully presented, and has a large section on preparation of DNA samples from different organisms. They have also had the excellent idea of presenting a series of photographs of failed gel runs, a sight quite commonly seen in most laboratories. However, in this case they provide some explanations for these failures which are likely to be of some use for people just starting to use this technique. Unfortunately, there are a number of areas which they do not have space to cover. In particular they do not discuss in any detail the choice of different restriction enzymes for human gene analysis. They also deal only very briefly with the choice and design of gel apparatus. They present data obtained on a commercially available LKB apparatus, but do not discuss alternative gel configurations. This is a pity because a CHEF attach-

ment is available for the LKB apparatus, which gives gel tracks that are far easier to read.

Francis Collins has contributed the chapter on Chromosome jumping. This is most thoughtfully written, but I am afraid that my conclusion at the end was that anybody who needed to read this chapter should not be attempting the technique, as the different strains of bacteria and phage needed and the background biological knowledge required is enormous.

The discussion of Complex genetic traits in humans by Lander is both stimulating and revealing. It deals in particular with strategies for mapping which have become possible now that an almost complete human gene map is available. It would be of considerable interest to anyone working in clinical genetics, even if they were not thinking of applying the methods practically.

For care and thought in preparing a chapter pride of place must go to Myers and colleagues for their contribution on the detection of single base changes in DNA. The theoretical background, comparison between methods, and detailed protocols are all beautifully laid out.

The book is bound in a new format with a ring binder protected by hard covers. This is to make it easier to use in the laboratory, but I doubt whether people will wish to risk such a valuable and interesting book being damaged by having it placed on their bench all the time. I am sure that all laboratories carrying out clinical molecular genetics will need one or several copies of this book.

S MALCOLM

Research in Retinitis Pigmentosa

Advances in the Biosciences Volume 62. Edited by E Zrenner, H Krastel, and H-H Goebel. (Pp 621; £70.00, US\$120.00.) Oxford, New York: Pergamon Press. 1987.

These are the Proceedings of the 4th Congress of the International Retinitis Pigmentosa Association which was held at Bad Neuheim in May 1986. The book is dedicated to the memories of Professor Jules Francois and Dr Chris Ernst, whose work is renowned in their respective fields of clinical ophthalmology and of psychophysics, and who made major contributions to our understanding of retinitis