

Implementation of DNA Typing (six papers), and a subject index.

These 29, mainly substantial, papers cover so much ground that it is impossible to summarize them all here. The first paper, by Jeffreys and his team, gives an excellent review of the development of multilocus and single locus minisatellite probes and the use of PCR, and discusses the biological properties of the unstable regions of DNA which form the basis of almost all DNA fingerprinting systems. Other papers in this section discuss the generation of variability at VNTR loci in human DNA (R. Wolff *et al.*), Oligonucleotide fingerprinting (Epplen *et al.*), and using minisatellite probes to detect a somatic mutation in the Proteus syndrome (C. E. Schwartz *et al.*) – now believed responsible for the condition of Joseph Merrick, the famous Elephant Man.

In the section on population genetics, there are several critical theoretical papers as well as one on 'Helpers at the nest in European Bee-eaters' (C. S. Jones *et al.*): DNA fingerprinting is used in this study to confirm that European Bee-eaters invariably help relatives at the nest, but do not contribute paternity or maternity to the brood they help. Hannotte *et al.* describe the large-scale isolation of Indian peafowl minisatellite sequences and discuss the evolutionary conservation of the cloned loci in the Phasianidae. Longmire *et al.* investigate genetic differentiation and migration of North American populations of the Peregrine Falcon.

Studies on economically important animals and plants include the chicken, salmonids and tilapias, two-dimensional DNA fingerprinting in animals, applications in plant breeding, oligonucleotide fingerprinting in plants and animals, and study of plant sequences homologous to human hypervariable minisatellites. The final section, on implementation of DNA typing, covers problems and new developments in forensic work, quality control of cell banks, and use of automated electrophoresis and fluorescence for genetic typing.

DNA fingerprinting is obviously a very thriving business, with an ever-increasing variety of applications. This symposium volume, in which each paper is very well referenced, including papers in press or submitted by not yet accepted, makes gripping reading and should be available in every biological library. I look forward impatiently to the proceedings of the next symposium; and many readers will be glad to learn that Bill Amos and Josephine Pemberton in Cambridge (the English one) have established an informal newsletter 'Fingerprint News', which is playing a major role as a forum for DNA fingerprinters.

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*More Gene Manipulations in Fungi*. Edited by J. W. BENNETT and L. L. LASURE. Academic Press. 1991. 470 pages. £45.50. \$75.00. ISBN 0 12 088642 1.

It is well known that, in the world of the cinema, sequels are almost invariably inferior to the original. Thus the release of 'Jaws 4' is more likely to induce a yawn than a rush to the cinema queue, and 'Citizen Kane reborn' would surely be an attempt to gild the lily. Does the same rule of thumb apply in the literary world? Are most attempts to build on previous success doomed to inferiority? These questions are relevant because *More Gene Manipulations*... is a follow-up to a highly successful volume, which rapidly established itself as a valuable reference work on the bookshelves of every fungal researcher. It is natural to wonder whether the success can be repeated.

Given the undoubted value of the first volume, I was pleased to find that when I reviewed it I had reacted favourably. I had been impressed both by the high standard of the contents and the range of subject matter covered. In my view this excellence is maintained in the present work. Like its predecessor the book is divided into sections, this time entitled: Diversity and Dimorphism; Tools of the Trade; Molecular Morphogenesis; Meiosis, Mating types and Mysteries; and Mycotechnology. In addition there are useful appendices.

As in the original, this compendium starts with a review of considerable general interest, written on this occasion by Perkins. He considers diversity and speciation in fungi and, in considering the diversity of mating-type systems, provides a foretaste of the later section covering the subject of meiosis and mating type. This area is particularly topical, and it is no surprise to find that the book contains useful reviews of the cloning of mating-type genes from both ascomycetes and basidiomycetes. Also included in this part of the book are accounts of gene mutation through RIP (Repeat Induced Point-mutation) in *Neurospora* and gene silencing (named Methylation Induced Pre-meiotically) in *Ascobolus* which are phenomena under active investigation in several laboratories at the present time. It is this mixture of general overview and detailed review of particular systems which is one of the strengths of this book.

Having found a successful formula, the editors have stuck to it, and once again there is a deliberate attempt to cover a wide range of different topics, which means that all readers will be able to discover something that is new to them. I enjoyed reading the section on mycotechnology and being introduced to the intricacies of heterologous gene expression through a comprehensive review by Cees *et al.*, whilst an account of  $\beta$ -lactam production by Skatrud was equally informative. Apparently at the present time the annual production of penicillin and its derivatives is sufficient to provide at least one round of therapy for every person on earth. The manipulation of  $\beta$ -lactam

biosynthesis genes carried out in a variety of species with the intention of improving the yields of  $\beta$ -lactam has met with varying success, a result that highlights the need to develop a method of predicting which are the important loci, perhaps by the application of control analysis to the problem.

In summary, the editors can be congratulated on compiling another hit. This work seems sure to emulate its predecessor and become a valued reference source in the field of fungal genetics.

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*Molecular Biology of Free Radical Scavenging Systems.*

Edited by JOHN G. SCANDELIOS. (Current Communications in Cell and Molecular Biology 5.) Cold Spring Harbor Laboratory. 1992. Pp. 284. Paperback. \$45. ISBN 0 87969 409 2.

This book is the latest title in this Cold Spring Harbor series. The book was stimulated by the success of a 1990 Banbury conference on aspects of oxygen-free radical research, which many of the contributing authors attended. The standard of the contributions is high, and the editor has compiled a series of

complementary and highly stimulating articles which cover a broad range of topics in free radical research. The book kicks off with an exploration of the possible links between oxidant damage to DNA, mitogenesis, ageing and cancer by Ames and Shinegawa, a chapter which is complemented by a thorough discussion of the mechanism and detection of this damage by Halliwell and Aruoma. Other high points of the book include a review of the links between the pathology of Down's syndrome and over-expression of CuZn superoxide dismutase, structure-function relationships in SOD, and the chapters dealing with the regulation of antioxidant defence genes in plants, yeast and bacteria. A minor gripe is the lack of a comprehensive chapter dealing with the oxidant stress regulons of bacteria, though the reader does get an introduction to these in the chapters by Loewen on regulation of bacterial catalase genes and by Liochev and Fridovich in their discussion of superoxide radicals in *Escherichia coli*. In conclusion, this book serves to bring together topics which will be of interest to anyone working in the growing field of free radical research and is thus recommended.

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