Genet. Res., Camb. (1994), **64**, *pp.* 145–147

Book Reviews

Nucleases, 2nd edn. Edited by STUART M. LINN, R. STEPHEN LLOYD and RICHARD J. ROBERTS. Cold Spring Harbor Laboratory Press, 1993. 507 pages. Price Cloth $75.00. ISBN 0 87969 426 2.

The second edition of *Nucleases* presents a series of reviews of various aspects of the cleavage of DNA and RNA, giving the reader a good introduction to each subject, and an extensive bibliography. It is the result of a Keystone Symposium held in mid-1993 and is a complete rewrite of the first edition published in 1982, with several extra chapters being added to cover new areas of research.

The book clearly shows the spectacular progress made in the last few years on the study of nucleases, particularly when structural and physical biochemical methods have been able to complement genetic and molecular biological approaches. This is apparent in excellent chapters on type II restriction enzymes, DNA recombination, repair and proofreading during replication, DNA topoisomerases and ribonuclease H.

Significant progress is reported on the recognition of DNA sequences by the multifunctional type I and type III nucleases, but unluckily the discovery of potential type I nucleases outside the confines of enteric bacteria was too late for inclusion. There are also chapters on homing endonucleases, fungal and mitochondrial nucleases (including the secreted S1 and P1 single-stranded nucleases), RNA maturation nucleases and ribozymes.

More chemical aspects of nucleases are well represented in the opening chapter on the chemical mechanisms of phosphodiester cleavage and a chapter on the artificial nucleases formed by coupling a sequence-specific targeting molecule to a nonspecific DNA cleavage molecule. Their use as rare sequence cutters in genome mapping projects and as therapeutic agents are discussed.

The text concludes with four appendices comprising the known target sequences of restriction enzymes, known DNA repair nucleases and glycosylases, commercially available nucleases and a list of the daunting number of nucleases required to keep even a simple organism, such as *Escherichia coli*, alive.

Overall the book is well presented and well written; the editors and authors have done a good job. It introduced me to many new, fascinating nucleases and each chapter clearly indicated where I could find further information. This edition of *Nucleases* will serve as a valuable reference book for quite a few years, despite the rapid pace of research, and I recommend it, not only to those people working on nucleases, but to anyone with an interest in the interactions between proteins, DNA and RNA.

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Blastogenesis: Normal and Abnormal. Edited by J. M. OPITZ; Wiley Liss. 1993. 403 pages. Price £124.00. ISBN 0 471 59789 9

This book contains papers from a workshop on human foetal pathology held some 3 years ago under the auspices of the March of Dimes. It contains 28 papers, most of which review or present data on human foetal pathologies, although there is a sprinkling of chapters that cover case studies, theoretical views and karyotypic work. These papers can be as short as six pages (a case study) to as long as 42 pages (a review on conjoined twinning). While coverage is not exactly comprehensive (little attention is, for example, paid to pathologies of the reproductive system) there is no doubt that anyone in the general area of foetal pathology will find something of interest in this book, be it the series of papers on cranial malformations or the various articles on twinning. For me, however, the major advance that the book highlights is the increasing use of 3D reconstructions of sectioned material to illuminate the structural basis of pathological states.

That said, I was unimpressed by every other aspect of the book. The chapters lack summaries to highlight their contents, while the editor seems to have made no attempt to impose any order on chapter organization so that the book seems a formless hodgepodge of articles. One particularly odd choice was the decision to call the book *Blastogenesis*, a term that the editor defines as development up to the end of gastrulation. Leaving aside the fact that the great majority of the papers deal with pathologies that clearly develop after gastrulation, most embryologists take the view that