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**Book reviews**

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**Inouye, M. (ed.): Experimental Manipulation of Gene Expression.** New York, London: Academic Press 1983. xiii + 315 pp., several figs. and tabs.

This book of approximately 300 pages is comprised of 14 chapters and 2 appendices. Each chapter is written by a "practicing scientist" who is currently in the forefront of modern molecular biology, and more precisely in the area of vector-host relationships. The different chapters provide authoritative and current overviews of various cloning vector systems, primarily of prokaryotes (i.e. *E. coli*, *B. subtilis*, *Streptomyces*). Yeast, plant, and animal cell cloning vectors are also covered. Several of the chapters describe the design and construction of plasmid vector systems used to achieve high-level expression of a particular phage regulatory protein normally found in minute amounts in phage infected bacterial cells. The significance of such vector systems is the potential to efficiently express functional gene products from essentially any organism, within the bacterial cells. The one chapter on yeast discusses the individual component parts of yeast expression vectors, and examines the considerations for optimizing each of these elements. Those vectors currently available are described and procedures for using them are discussed. Kemp, in his chapter, presents an excellent summary for genetically engineering plants by novel approaches including cell culture and protoplast fusion, recombinant DNA vehicles, and regeneration of transformed cells. Several chapters deal with the introduction of cloned DNA sequences into mammalian cells. An important advance in this area is the development of derivative vectors that permit extremely rapid recovery of recombinant genomes propagated in mammalian cells as molecular clones; this will be useful in attempts to isolate genes on the basis of their expression in mammalian cells. Also, the development of mammalian expression vectors from the genome of retroviruses is discussed very effectively.

In general, the book is well organized and each chapter offers something useful to the reader. The practical instructions for manipulating genes and their expression in foreign systems should prove helpful to both the beginning and advanced investigators.

J.G. Scandalios, Raleigh

**Cozzarelli, N.R. (ed.): Mechanisms of DNA Replication and Recombination.** New York: Alan R. Liss 1983. xxvi + 876 pp., several figs., several tabs.

As a record of the proceedings of a UCLA Symposium held in Keystone, Colorado in 1983, this volume presents a series of papers on the study of molecular mechanisms of replication and recombination. The outstanding contribution for me is the keynote address by Arthur Kornberg, wherein he reminds us of the importance and place of enzymology in DNA replication studies and gives us an insight into strategies and tactics that should be adopted for such studies. As one who has been fortunate enough to have participated with him in earlier enzymological endeavours in this area, I can say that these are indeed the very tenets of his success.

Besides the keynote address, the book contains no less than 56 other papers. These are divided up into the areas of DNA structure, topoisomerases and helicases; bacteriophage DNA replication; replication of *E. coli* chromosome and plasmids; eukaryotic DNA replication; site-specific recombination; general recombination. On reading through these papers, it is apparent that much more use is now being made of the fact that the secondary, tertiary and quaternary structure of DNA can be well defined and that homogeneous proteins can be used to catalyse and aid in replication and recombination studies. Cloning can also be used to produce large amounts of particular proteins and DNA, enabling the investigator to make even more precise physical measurements.

The section on eukaryotic DNA replication demonstrates the great advances that have been made in this area over the past few years, including sequence analysis at replicon origins and an understanding of the replication components in adenovirus. Some differences are emerging between the prokaryotic and eukaryotic systems. A very complete and up-to-date coverage of replication and recombination, this volume is essential reading for those postgraduates and research workers who have a need to keep up with this rapidly advancing field.

J.F. Jackson, Glen Osmond