

Finally, Harris has written an article on expression of eukaryotic genes in *E. coli*. After an introduction to prokaryotic gene expression signals and problems of expression of eukaryotic genes in prokaryotes the author deals in turn with the different promoter systems (*lac*,  $\lambda P_L$ , *trp*, *bla*) available and examples of how they have been exploited. Harris covers both successes and failures of current techniques and ends with an interesting discussion of conclusions and future prospects. He also includes a useful table listing those eukaryotic genes so far expressed in *E. coli*. While there is some overlap with the article of Craig and Hall the subjects of the articles are sufficiently different to justify inclusion of both.

All of the articles are written clearly, are very readable and are well referenced. In line with this series as a whole the articles do not go into methodological details except where this is necessary to appreciate the principles being described. Each article appears to be comprehensive in covering its particular subject area and as up to date as one can reasonably expect. I was aware of only a few very minor errors and typographical mistakes. The print is bold and easy to read and each article is well presented with many subsections, each informatively entitled. The figures on the whole are easy to follow.

This "Genetic Engineering" series is popular, and rightly so, but I am slightly disappointed that this volume does not include a cumulative index showing contents of previous volumes. I should also point out that this volume does not have its own internal subject index, which some might regard as a shortcoming. Despite these minor points I would strongly recommend this volume.

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THE INCONSTANT GENE. Lawrence S. Dillon. Plenum Publishing Corporation. Pp. vii+581. Price: \$65.00

The major part of this book seems to be concerned with a detailed documentation of differential gene expression. While the title implies an emphasis on variation between genes (*i.e.*, DNA), only one chapter discusses this phenomenon, and this is in the context of gene activity changes in immunity. The other six main chapters are devoted to changing gene expression during gametogenesis, fertilisation, early embryogenesis, adult organ differentiation (muscle, liver, blood), in bacteria, fungi, and higher plants, and during various cyclical cell activities (cell cycle, circadian rhythms, ageing). Each of these main chapters contains detailed documentation of what is known about the diversity of structures and populations of molecules in various differentiating cell types or stages of development. This style of presentation can seem rather hard to digest, since it is not orientated towards specific questions, nor is each section accompanied by a summary or statement of general conclusions. To some extent this may reflect the limited state of our present knowledge.

I believe the main value of this work will be as a directory to the extensive literature on the consequences of differential gene expression. In this respect, the book has the merit of covering work in a great variety of

organisms, including invertebrates, higher plants, as well as such groups as bryophytes, lower embryophytes, fungi, and algae. Another merit is the enormous reference section comprising nearly one fifth of the book and some 3,000 citations, each complete with a title. Unfortunately these are separated into sections relevant to each chapter, which makes it tiresome to track down a particular author's work.

The last chapter in the book differs substantially from other chapters, in that it is presented as a summary of conclusions derived not only from this book, but also from two previous works by the same author in the same series. The author emphasises his view that the genetic apparatus cannot be explained in the light of rigid mechanistic philosophy, and invokes a "non-mechanistic behaviour of the genetic apparatus". He proposes a "supramolecular genetic mechanism", to which he appears to attribute most of what we do not at present understand about gene control. This may well be a novel concept, but to me it is not sufficiently well defined to be useful, and there appears to be no test for its existence or non-existence. The author says that "isolated enzymes systems" are unable to explain gene control, but I can find no clear reasons to reject entirely conventional molecular explanations, in our present state of knowledge.

I consider that this work will be useful to those interested in gene expression on account of its detailed accumulation of results from recent literature and the very extensive literature section. Depending on one's appetite for speculative concepts, some may be attracted to the ideas on supramolecular mechanisms.

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