Book reviews

Gene Regulation in Eukaryotes. Edgar Wingender. VCH, Weinheim. 1993. Pp. 430. Price £67.00, hardback. ISBN 3 527 28460 5.

How genes are regulated is probably one of the major questions that researchers ponder upon. The switching 'on' and 'off' of genes during development and tissue-specific expression has been of interest in the past decades in understanding various biological functions. The role of steroid hormones and external stimuli in gene expression is also an important aspect in understanding how genes are regulated.

This book gives an insight into what gene regulation is all about and is a comprehensive review with examples ranging from yeast cells to human beings. The first four chapters are devoted to introductory aspects of the basic transcriptional machinery, the DNA-dependent RNA polymerases and their general transcription factors. Chapter five describes those proteins which specifically recognize and bind DNA sequences and thereby regulate the expression of structural genes. The mechanism of signal transduction and the role of cyclic-AMP and other secondary messengers in gene regulation are discussed in chapter eleven. 'What regulates the regulators?' is an important concept and one which perhaps represents the highpoint of the numerous examples given. An attempt to elucidate the concept is made, using examples which include Hormone Responsive Regulatory Elements (HREs) and the steroid/thyroid hormone receptors which are discussed in chapter twelve. Finally, chapter fourteen enters the world of tumour suppressors and describes how they interact with viral regulators, using examples from the Adenoviruses and SV40.

Most of these chapters are sub-divided, with a short summary after each section which highlights the salient points described within, making it easier for the reader to follow. Although there is so much information condensed into the individual chapters, the clarity with which the book is written is commendable. The diagrams and illustrations are not captivating, but they do a good job in elucidating the points described.

In general, the book would mainly attract researchers who want to venture into the area of gene regulation and those who are already within the field but would like to get insights into other examples within the eukaryotic system. Unfortunately, the higher plant systems are not described. Nevertheless, the book is almost a review of what is currently known on gene regulation within eukaryotic cells and, with more than 2000 references, one cannot expect much more. These references are probably adequate for those who would want further reading and the full list is available on disk — at a fee, of course! The price of the book makes it out of reach for postgraduate students and copies will therefore probably end

up in libraries or laboratories. However, it is certainly a book worth having on the shelf and I would be glad to own a copy.

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Chromosomes Today (Volume 11). A. T. Sumner and A. C. Chandley (eds). Chapman and Hall, London. 1993. Pp. 406. Price £50.00, hardback. ISBN 0 412 47670 3.

Chromosomes Today, Volume 11, is the published proceedings of the 11th International Chromosome Conference which was held in Edinburgh in August 1992. Over 300 scientists, including myself, attended this lively and colourful meeting which testified to the continuing good health of the subject and to the desire of cytogeneticists and, increasingly, molecular biologists to meet and discuss chromosomes. The great power of the new techniques for investigating chromosomes at the molecular and supramolecular levels was abundantly demonstrated by the contributors, many in visually stunning ways, reaffirming for me the excitement and aesthetic appeal of impeccably stained and spread chromosomes.

This volume contains almost all of the invited contributions and, as the editors claim in the Preface, it 'attests to the diversity of approaches and applications in chromosomal studies'. The first chapter, which is based on M. A. Ferguson-Smith's opening lecture, sets out to place today's activity in human genome mapping into an historical perspective by reviewing the major landmarks in human cytogenetics from its tentative beginnings in 1879 to the present. As one might have expected, this review was authoritative and perceptive, highlighting past achievements and indicating possible directions for future investigation.

The remaining 29 contributions are grouped, as they were at the Conference, into eight themes. The majority of the papers (about two-thirds) deal with human or mammalian systems; although this balance undoubtedly reflects current activity in chromosome research, it is a little disappointing that the exciting work being conducted on other animals, plants, yeast and bacteria is represented by only nine contributions. The impact of molecular studies is evident throughout and not least in the first theme, chromosome structure, which is devoted to human and vertebrate genomes. Contributions on the nucleolus cover a range of topics including morphology, compartmentalization, nucleo-