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Book reviews

DNA–Protein Interactions. Andrew Travers. Chapman and Hall, London. 1993. Pp. 180. Price £14.95, paperback. ISBN 0 412 25990 7.

Much has been written about the structure, shape and function of proteins. Many structural biochemists and molecular biologists, however, tend to overlook the subtleties of the departure of DNA from the classic B-form and the consequences of such distortions for the biological activity of DNA in its interactions with other molecules. Molecular biologists quite naturally think of DNA as essentially linear, while structural biochemists working on proteins tend to assume that the structure of all DNA is B-DNA. In this relatively short book, Andrew Travers has tried to rectify this lamentable situation, by presenting many examples of DNA–protein interactions, in the context of their biological roles, from a strongly DNA-centric viewpoint. In my case, as a scientist working on the structures of DNA-binding proteins, but not yet with DNA itself, he has succeeded.

After a preface where he acknowledges the limitations of such a survey of a rapidly advancing field, the author starts with a chapter revising the basics of DNA structure and the parameters used to describe local and global conformation. He explains how the typical gross structures of DNA strands are related to detailed local deviations from ideality, and then goes on in subsequent chapters to describe examples of some of the different sorts of DNA–protein interactions that have been observed. In each case he emphasizes the role played by the shape and flexibility of the different DNA sequences in optimizing binding.

For such a short book, the coverage is extremely broad. There are chapters on three-dimensional architecture of protein–DNA complexes, sequence-specific binding of proteins to DNA, the mechanism of RNA chain initiation, regulation of promoter selectivity in eubacteria, the mechanism of eukaryotic transcription and the relationship between chromatin and transcription. In each of these chapters the author gives a brief summary of the processes and issues involved and then discusses the mechanisms proposed at the atomic level. He uses examples of genetic experiments and structures of proteins and protein–DNA complexes as appropriate, drawing out trends where possible, and pointing out where current knowledge is incomplete.

Would I buy this book if I hadn't been sent a copy to review? The title is enticing, the contents page reassuringly comprehensive and the author is well respected in the field, but I do have some reservations. The figures are a little disappointing. In these days of computer graphics the absence of any colour, and the somewhat simplistic nature of some of the figures seems a wasted opportunity. These are very mild complaints though; unnecessary colour can be a distraction, and it is always better to err on the side of simplicity in order to get one's idea across. What is more limiting is the paucity of labels on the figures and the extreme terseness of the figure legends. Added to the fact that the text referring to a figure is often a page-turn away, this means that one sometimes ends up guessing what the author intended to convey, and I wonder how well a reader that doesn't have a reasonable knowledge of the subject already will cope.

On the whole though, anyone who knows about either protein structure or DNA, and who wants to extend their knowledge into the field of DNA–protein interaction, will find this book of great service.

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Molecular Genetics of Sex Determination. Stephen S. Wachtel (ed.). Academic Press, London. 1994. Pp. 518. Price £59.50, hardback. ISBN 0 12 728960 7.

This book contains all you ever wanted to know about mammalian sex determination but were afraid to ask!

There are chapters on the hunt for the testis-determining factor, possible (TDF) candidates, identification of SRY as TDF, the structure of the sex chromosomes, X-chromosome inactivation, sex reversal in mice, chromosomal abnormalities, steroid deficiencies and the Anti-Mullerian Hormone story. Oh yes, there is also a chapter on *Drosophila* sex determination, the principle function of which appears to be to keep the word 'mammalian' off the book cover. Individual chapters are all excellent, and so they should be, since they were written by the people who formulated the theories and/or those that did the lab work. In soccer terms, this is the Brazilian World Cup squad. In fact, the line-up contains so many of the acknowledged experts in this field that it is simpler to relate that neither Burgoyne nor Goodfellow have contributed chapters, than it is to list those that have. However, good quality players do not always make a great team — English fans will be aware of how important the Manager is. The impression here is that the authors were given free rein and while this has resulted in chapters which can stand alone, it has created a measure of repetition over the book as a whole. For example, the editor himself has contributed to an excellent overview on 'The Search for the Male-Determining Gene', which I have no doubt will form the basis of countless student essays for many years to come,