

Book review

Chromatin: structure and function. Alan Wolffe. Academic Press (Harcourt Brace Jovanovich), London. 1992. Pp. 213. Price £14.95, softback. ISBN 0 12 761911 9.

For much of the 1980s the field of transcriptional regulation in eukaryotes was dominated by two major players: cis-regulating DNA sequences and trans-acting protein factors. Studies relating to these components pervaded the literature. The part played by histones and chromatin structure in the transcription process was largely relegated to the sidelines. In the 1990s this situation has changed dramatically. *Chromatin: structure and function* by Alan Wolffe is a welcome and opportune attempt to provide both a comprehensive background and an overview of the recent emergence of histones and chromatin as integral parts of the transcriptional control mechanism and other nuclear processes.

There are three sections to the book. The first provides reasonably comprehensive coverage of chromatin structure. However, because the book as a whole aims to emphasize the functional aspects of chromatin, this section lacks the depth attained in Ken van Holde's excellent *Chromatin*. Sacrificing depth and detail has its pitfalls, a limitation demonstrated in the description of the higher order, 30 nm, chromatin fibre, which is somewhat simplistic and therefore ultimately rather confusing to the reader.

The systems and methodologies employed to effect chromatin and nuclear assembly are justifiably elevated to their own section. Progress towards understanding the role of chromatin, and the manner in which it is assembled during replication in the cell, depend heavily upon the ability to construct defined chromatin substrates: Alan Wolffe provides a clear summary of the options and future prospects.

However, the main strength of the book is in its final section on chromatin-related nuclear processes. It is in this area,

particularly in the field of transcriptional control, that our understanding of the importance of chromatin structure and its interplay with trans-acting factors has progressed most rapidly in recent years. We now know that histones can specifically influence the binding of trans-acting proteins to cis-regulating DNA elements; that they can facilitate the interaction between trans-acting proteins; and that they can even interact directly with trans-acting proteins. These advances, emanating from research into a wide variety of genes and model systems, are well documented in *Chromatin: structure and function* and the ensuing implications for transcriptional control are presented in a coherent and integrated manner.

Attempting to cover almost all aspects of the structure and function of chromatin in such a slim volume inevitably predicates that some areas will receive inadequate coverage. The significance of these will depend upon the experience or partiality of the reader. Nevertheless, the omission of any substantial reference to the topic of chromatin supercoiling in either a structural or – more importantly – functional context is a significant limitation: chromatin supercoiling may be a thorny and elusive topic but to ignore its relevance seems short-sighted.

In spite of my reservations, I found *Chromatin: structure and function* to be a well-constructed and enjoyable text to read. It should prove to be a valuable aid to teaching, particularly as its price is well within the means of most undergraduate students.

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