

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (R. F. Bryan, Department of Chemistry, University of Virginia, McCormick Road, Charlottesville, Virginia 22901, USA). As far as practicable, books will be reviewed in a country different from that of publication.

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DNA structure and recognition. By S. NEIDLE. Pp. ix + 108. Oxford: IRL Press, 1994. Price (soft cover) £9.95. ISBN 0 19 963419 X.

This little book covers, in just over 100 pages, the principal structural features of the DNA double helix and its interactions with water, drugs and proteins. The length of the book precludes extended discussion at a level of fine detail, and that is not its intent. In it, instead, Stephen Neidle has selected the most relevant topics in the field of DNA structure and recognition, and I congratulate him on having condensed them in what I find to be a very well written text.

The book has five chapters. *Methods for studying DNA structure* describes X-ray fiber and single-crystal diffraction, NMR spectroscopy, and molecular modelling and simulation of DNA. *The building blocks of DNA*, gives the essential features of nucleotide structure and conformation as a foundation for understanding the following chapter, *DNA structure as observed in fibers and crystals*. This chapter gives helical parameters and morphological features of base pairs in double helices, and describes classical DNA structures and DNA polymorphism in fibers, together with the main characteristics of A-, B- and Z-DNA. The chapter also presents some particular features of DNA, including DNA periodicity in solution, A tracts and DNA bending, and the structures of poly- and oligo-(dA-dT). *DNA-DNA recognition*, describes non-standard DNA structures, and mismatched base pairs and their structural consequences, and discusses multistranded DNA helices, such

as the triple helix and guanine quadruplexes in telomers. Finally, *Principles of ligand-DNA recognition*, describes the interactions of the DNA double helix with water, drugs and proteins. The ligands discussed in that chapter have been chosen very carefully to give a broad view of this very fascinating topic. The chapter closes with a paragraph on the implications of ligand binding for DNA conformation.

All the chapters conclude with suggestions for further reading and a number of references. The book is very well illustrated with figures in two colors, which are especially useful in the chapter where DNA-ligand interactions are described. Finally, in an appendix, more detailed aspects of DNA structures are given in the form of tables.

In my view, Stephen Neidle has done an excellent job in putting together, in a very short form, the state of the art of DNA structure and recognition. The book is primarily directed at undergraduates interested in obtaining an overview of the structure of DNA and its interactions with ligands, and the text is eminently suitable for lecture courses. For the more advanced scientist, it may serve as a quick source of information, and the cited literature will help, should more detailed knowledge of the topic be needed.

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