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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Nucleic acid targeted drug design. Edited by C. L. PROPST and THOMAS PERUN. Pp. 644. New York: Marcel Dekker, 1992. Price $165.00. ISBN 0-8247-8662-9.

Depending on one's perspective, this book either deals with the design of potential new therapeutic agents targeted to nucleic acids and nucleic acid–protein complexes, or with the characterization at a molecular level of drug–DNA interactions for known agents believed to function *via* such interactions. In either case, the book will be of interest to those who study nucleic acids, macromolecule–effector interactions, or low molecular weight species that can bind to nucleic acids. The book consists of an introductory chapter written by the editors, followed by 12 chapters divided into sections that deal with methods (Chapters 2–6) or applications (Chapters 7–13). The introductory chapter is a laudable effort to place the later chapters in context, *i.e.* to describe how ongoing developments in the preparation of increasingly specific nucleic acid interactive agents, and in supporting analytical methods for characterizing drug–nucleic acid interaction, can lead to a greater number of improved therapeutic agents of value for intervention in larger numbers of clinical disorders. This chapter is appealing in its vision of opportunities for nucleic acid-targeted agents, even if it does ignore certain fundamental realities such as the present lack of understanding of the therapeutically critical lesion induced by most agents that function at the level of DNA/RNA interaction, and the fact that many of the presently available agents function at multiple biochemical loci. It also rests on the assumption that selectivity of action at the level of nucleic acid–effector interaction can produce a selective therapeutic effect.

The other chapters are of good quality and are worth reading both to gain an appreciation of the methods currently available for analyzing drug–nucleic acid interaction, and to obtain a detailed analysis of nucleic acid binding/modification by representative agents of ongoing interest. The coverage in individual chapters is complementary avoiding duplicate presentation of concepts or examples. The methods described include structural studies by X-ray crystallography and NMR spectroscopy (A. H.-J. Wang & H. Robinson, Chapter 2, 48 pp.), modelling drug–nucleic acid interactions by computer graphics and computational chemistry (S. N. Rao, Chapter 3, 27 pp.), studies of sequence specificity (J. C. Dabrowiak, A. A. Stankus & J. Goodisman, Chapter 4, 57 pp.), and construction of QSARs from modelling studies (A. J. Hopfinger, M. G. Cardozo & Y. Kawakami, Chapter 5, 43 pp.). The applications systems include interactions of nucleic acids with netropsin and the lexitropsins (M. L. Kopka & T. A. Larsen, Chapter 7, 72 pp.), pyrrolo[1,4]benzodiazepines (W. A. Remers, M. D. Barkley & L. H. Hurley, Chapter 8, 48 pp.), quinolones (L. A. Mitscher & L. L. Shen, Chapter 9, 52 pp.), neocarzinostatin and related antibiotics (P. C. Dedon & I. H. Goldberg, Chapter 10, 49 pp.), and intercalative agents (M. Agbandje & R. McKenna, Chapter 11, 32 pp.). The remaining two chapters describe catalytic antisense RNAs (J. O. Deshler & J. J. Rossi, Chapter 12, 21 pp.) and oligonucleotide-based therapeutics (N. Bischofberger & R. G. Shea, Chapter 13, 34 pp.). Although not constituting a major drawback, it may be noted that the separation of chapters into methods and applications is not entirely appropriate. Chapter 6, for example, dealing with the molecular basis of sequence-specific DNA–protein interactions (T. Kodadek, 105 pp.) really contains primarily neither methods nor applications but provides a particularly detailed account of protein–DNA interactions.

The same may be said of Chapters 11 and 12. In contrast, Chapters 8 and 9 contain both methods (fluorescence proton NMR and methods of studying the mode of action of topoisomerase inhibitors) and applications. The level of coverage of subjects in individual chapters is generally comparable from one chapter to another. There are, however, a few exceptions such as the lengthier coverage offered by Chapter 6. In contrast, Chapter 12 is 21 pages in length; while still of good quality, this chapter necessarily lacks the depth of coverage of some of the others.

In the aggregate, this book does a good job of educating the reader about a spectrum of activities that can be viewed as pertinent to the subject of nucleic acid-targeted therapeutic agents. While, because of space limitations, few of the areas covered can really be dealt with in a comprehensive fashion, the book does provide perspective about an interesting field that is currently receiving much attention.

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Books Received

The following books have been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally, a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

International tables for crystallography. Vol. C. Mathematical, physical and chemical tables. Edited by A. J. C. WILSON. Pp. xxix + 883. Dordrecht: Kluwer Academic Publishers, 1992. Price Dfl 400, US$ 244.00, £139.00. ISBN 0-7923-1638-X. Because of the special character of this work, and in lieu of a review, a detailed table of its contents is provided in *Acta Cryst.* (1993), A**49**, 371–373. Individuals may purchase this volume, for personal use, at a substantial discount. Details are given in the advertisement facing *Acta Cryst.* (1992), A**48**, 956.