

## Book Reviews

**Bioorganic Chemistry: Nucleic Acids.** Edited by Sidney M. Hecht. Oxford University Press, New York. 1996. viii + 500 pp. 17 × 24 cm. ISBN 0-19-508467-5. \$59.95.

As explained in the editor's preface, the volumes in this series have been written specifically to support the teaching of graduate students. "Each book is written as a set of chapters whose numbers approximate the number of weeks in a semester, and whose subject has been identified as critical to an appreciation of ongoing research activity... (t)he chapters are organized in much the same fashion as lectures in special topics courses."

The present volume, which considers nucleic acids, comprises 14 chapters devoted to chemical and enzymatic preparative methods, nucleic acid structure and methods of structural determination, nucleic acid interactions with metal ions, small molecules, and proteins, antisense/antigene oligonucleotides, catalytic RNA, and the polymerase chain reaction. About two-thirds of the chapters are written by academic researchers; the remainder is authored by industrial and institutional experts.

The organization of the chapters developed by the editor includes a consideration of basic principles, a summary of key findings, an overview of current research, and a further detailed discussion of selected illustrative studies. In general, the editor and his contributors have succeeded admirably in producing a modestly priced book that will be very useful, not only for its target audience of students but for anyone wishing to have a concise yet thorough overview of the field. A broad expanse of information is presented in a clear manner, is well illustrated by many structural formulae and diagrams, and is extensively documented by literature citations.

Of particular interest to the medicinal chemist are the discussions of ligand–DNA interactions undertaken in Chapters 4 and 9–12. A nice treatment of the noncovalent bonds involved in such interactions is presented by Larson and Verdine, who emphasize the factors affecting the influence of these bonds on *specificity* versus their effect on *affinity*—a distinction not always appreciated in medicinal chemistry textbooks. The important topic of small molecule–DNA interactions as exemplified by several major antitumor agents is lucidly expounded by Mountzouris and Hurley, whereas antisense and antigene oligonucleotides, with their potential for a new era in medicinal chemistry and drug discovery, are ably considered by Miller.

I found the peculiar arrangement of collecting the bibliographic citations for each of the chapters at the back of the volume to be awkward, in that a particular citation has to be located first by chapter and then by its alphabetical placement. One wonders what advantage this arrangement has over the more usual practice of listing the citations at the end of each chapter or, alternatively, of placing a cumulative list of citations for the entire book at the end of the volume. And as a chemist raised on the texts by Louis Fieser, who always managed to include some brief remarks concerning the

chemists whose minds and hands had produced the findings he was explaining, I would have hoped for a modicum of similar discussion regarding the scientists whose achievements are chronicled in this fine exposition. This book should be favorably considered for acquisition by faculty for their graduate classes in the field, by workers in the field, and by academic and insitutional libraries.

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**Regulatory Protein Modification. Techniques and Protocols. Neuromethods. 30.** Edited by Hugh C. Hemmings, Jr. The Humana Press, Totowa, NJ. 1997. xiv + 445 pp. 16 × 23.5 cm. ISBN 0-89603-415-1. \$75.00.

Volume 30 in the *Neuromethods* series, edited by Alan A. Boulton and Glen B. Baker, focuses on the posttranslational modification of proteins in neurons, an important element of neuronal function. The most prominent mechanism in the regulation of protein function in signaling pathways, i.e., protein phosphorylation, is emphasized, although newer mechanisms are also covered.

The first six chapters address various techniques relevant to the study of protein phosphorylation in the nervous system. Site-directed mutagenesis, a technique of molecular analysis recently applied to the identification and characterization of sites of protein modification, is detailed in Chapter 7. Chapter 8 describes technical approaches to the study of protein methylation. S-Palmitoylation, a recently recognized component of neuronal signal transduction, is reviewed in Chapter 9. Recently identified neuronal ADP–ribosylation and related analytical techniques are the subject of Chapter 10. The final chapter is devoted to techniques used to study protein glycosylation and glycoposphatidylinositol anchoring, mechanisms of current interest in the regulation of plasma membrane proteins.

This volume provides a useful reference for molecular neuroscience researchers concerned with cell signaling, cell biology, and neurochemistry. Medicinal chemists, as well as other neuroscientists, molecular biologists, and pharmacologists concerned with posttranslational protein modification, will benefit from this book.

**Staff**

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