Book Reviews

Supramolecular Chemistry of Anions. Edited by Antonio Bianchi, Kristin Bowman-James, and Enrique Garcia-Espana. Wiley-VCH, New York, NY. 1997. xiv + 461 pp. ISBN 0-471-18622-8. $79.95.

This very timely volume is a must for all practitioners in the areas of coordination chemistry, separations science, and ion sensors. For the former, this book will reveal the missing half of coordination chemistry. For the latter two, it will serve as a treasure-trove of valuable facts and ideas. The text consists of 11 chapters that cover the theoretical and physical principles of anion binding by complex macrocycles as well as simpler ion-pairing, electrochemical detection of such complexes, their structural chemistry, the development of ion sensors and phase transfer catalysts and an overivew of anion binding proteins. A concise background chapter that presents the history of the field is also included. The chapters discussing the factors that underpin key thermodynamic and kinetic data are particularly welcome, as is the detailed compilation of much useful technical information that extends the book from a pedagogical text to a concise reference manual. Most other chapters deal with the large literature of macrocycles designed to bind anions of biomedical or environmental significance and develop the use of such molecules in separation science and as ion sensors. One chapter focuses on anion binding proteins, although other biological topics are covered as subtopics throughout the text. Each chapter is clearly written by experts in the field, and the literature coverage is, with a few exceptions, fairly complete with coverage extending thorough 1994/95. Indexing is adequate.

The price of the text is most reasonable and should attract a healthy readership among coordination and bioinorganic chemists and scientists in the fields of separations and sensor development. As stated previously, the text is indeed timely and readable and provides comprehensive and thought-provoking coverage of an important and rapidly developing area of research.

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Emerging Therapeutic Targets. Volume 1. Edited by R. Anand, P. Smith, and P. Warne. Ashley Publications Ltd., London. 1997, ix + 281 pp. 21 × 29.5 cm. ISSN 1460-0412. $865.00.

The introduction into medicine of antibiotics, steroids, and drugs for the treatment of mental illness represents three examples of whole new eras in therapy that resulted from industrial−academic collaborations. Today, the formation of industrial−academic research alliances as well as R&D partnerships between industrial organizations continues to be of growing importance as a strategy for pharmaceutical discovery and development. Given the extraordinary pace of current research in biotechnology and the large number of participants, the work of identifying and introducing prospective partners is difficult. The academic and industrial technology licensing officers who are the "marriage brokers" in this effort have had to rely on personal contacts, large meetings, and published research articles to be alerted to new opportunities—a relatively inefficient process. Thus, the introduction of a new periodical to aid in this task is very welcome.

In its first volume, this publication profiles 65 opportunities in 6 broad disease categories: antiinflammatory, antiinfective, CNS, cardiovascular, oncologic, endocrine and metabolic, and a miscellaneous group. Each presentation begins with a listing of the target, mechanism, and proposed therapeutic intervention. After providing information concerning the site of the study, a discussion of the background and goals of the project is undertaken, followed by an indication of the type of partner and funding level sought. The volume concludes with an index classified by individual diseases.

According to the publishers, the presented information was gathered by soliciting contributions from academic research groups worldwide and was reviewed by the editors. The laboratory sites are roughly equally divided between the UK, the US, and the rest of Europe and include only a few in the remainder of the world. Volume 2 will appear in 1998 as two issues and, by contrast to the present volume, will be available in fully searchable electronic format.

As one who is currently retained as a technology scout for a major pharmaceutical company, I found this publication to be a useful source of information pertinent to partnering. Its price appears high, but is actually a good value in comparison to the cost of attendance at a major partnering meeting. Acquisition of this periodical should be considered by commercial partners seeking innovative drug discovery research opportunities.

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Highly Selective Neurotoxins. Basic and Clinical Applications. Edited by R. M. Kostrzewa. Humana Press, Towota, NJ. 1998. xii + 404 pp. 16 × 23.5 cm. ISBN 0-89603-465-8. $125.00.

This book is a collection, in 15 chapters, of information concerning the most popular and useful neurotoxins. There is an outstanding cast of chapter authors. The work contains extensive discussion of 6-hydroxydopam-

ine and related compounds in the first three chapters, followed by a chapter on 6-hydroxyDOPA. There are then two chapters on 5,6- and 5,7-dihydroxytryptamines as serotonergic toxins. Together with a chapter on MPTP, these contributions seem the most useful and provide a reasonably comprehensive overview of both the chemistry and effects of these neurotoxins.

Perhaps less well-known are the 2-chloroethylamines DSP4 and xylamine, neurotoxins for noradrenergic neurons, and the chemically related ethylcholine aziridinium ion AF64A, as well as a more experimental antineuronal immunotoxin 192 IgG-saporin, the latter two of which specifically lesion cholinergic neurons. The book usefully gathers together in two chapters what is known about these toxins.

A chapter on glutamate and excitatory amino acid toxicity and another on NMDA receptor antagonists, principally PCP and MK801, cover subjects of such complexity that not much more than an overview is presented, but with many useful references to the primary literature.

Four additional chapters describe less specific toxins. One discusses at length the specific and relatively obscure toxicity to the habenula of chronic cocaine and amphetamine administration, while another discusses the neurotoxicity of amphetamine derivatives to dopamine or serotonin neurons. These topics probably appeal to a narrower range of interests than some of the others.

More speculative and much less useful (but intriguing) is a chapter that discusses the possibility that haloperidol-derived pyridinium metabolites may possess clinical relevance with respect to tardive dyskinesia. While the topic is interesting, whether or not these metabolites are actually important in the etiology of TD cannot be concluded from present data, and this chapter seems out of place in the context of the others.

A final brief chapter discusses "toxic vanilloids". Primary sensory neurons are destroyed by neonatal capsaicin administration (at least in rats), which has no toxic consequence if given to the adult. Except for that fact, it is not clear why this chapter was included.

This book will be of general interest to neuroscientists and neurotoxicologists. While it does not provide actual methodology, it is loaded with secondary references that will guide to the relevant literature any investigator wishing to incorporate brain lesions into his/her experimental paradigms. The book will be of specific interest to neuroscientists who are embarking on the study of any of a variety of neurodegenerative processes and who wish to gain appreciation of the effect of lesions in particular brain areas.

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Pharmacologic Analysis of Drug−Receptor Interaction. By Terry Kenakin. Lippincott-Raven Publishers, Philadelphia. 1997. xii + 491 pp. 16 × 24 cm. ISBN 0-397-51815-3. $99.00.

This third edition contains 13 chapters that present a number of important pharmacological aspects of drug−receptor interactions. It begins with a very basic set of definitions, including drugs and receptors, and discusses various theories and models of drug−receptor interactions. It next focuses on seven-transmembrane receptors and the involvement of G-proteins.

In the third chapter such terms as agonist, partial agonist, antagonist, and inverse agonist are illustrated. Human recombinant receptor systems are discussed, along with the fidelity of the signals. Response quantification with dose−response curves is illustrated liberally throughout the book. Discussions are presented concerning how drugs arrive at sites for activation or inhibition of receptors. The all-important topics of affinity and efficacy are given full chapters in the book. The means by which drug molecules can bind and interact on a receptor surface are discussed and are nicely illustrated with schematic drawings and with dose−response curves. Some of the useful techniques for studying kinetics of drug action are discussed in the final chapter.

The book provides an in-depth discussion of how receptors have their own innate behaviors and how they interact with membranes and ligands. The book is well-referenced and has a very useful subject index; the index provides indicators on tables and figures. The book gives valuable insights as to how ligands can interact with receptors and produce different types of dose−response curves. The choice of receptor system to be used depends upon what information is desired; theoretical advantages are discussed. This text should be especially useful for pharmacologists, cell biologists, and physiologists.

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Combinatorial Chemistry, Synthesis and Application. Edited by S. R. Wilson and A. W. Czarnik. John Wiley & Sons, Inc., New York. 1997. ix + 269 pp. 16 × 24 cm. ISBN 0-471-12687. $69.95.

There have been several recent reviews describing many aspects of the technique known as combinatorial chemistry. This book has a different feel in that it does not tabulate long lists of solid-support resins with examples of where they have been used, nor did it list all of the references to date summarizing all of the known solid- and/or solution-phase syntheses that have been described. Via 12 chapters written by academic and industrial scientists (mostly about their own experiences), this book presents an excellent perspective on most of the key aspects of this field. Each chapter is very well-written and shows detailed diagrams of lab equipment, synthetic schemes, and concepts.

The application of combinatorial chemistry is a function of technique and data analysis. With a few exceptions where detailed experimental sections are written,