Book Reviews

Ion Channels Volume 4. Edited by Toshio Narahashi. Plenum Press, New York and London. 1996. XVII + 457 pp. 17 × 25.5 cm. ISBN 0-306-45224-3. $110.00.

Ion Channels, now in its fourth volume of reviews, is now an established series. Ably edited by Toshio Narahashi and with an expert editorial board, each volume presents timely and critical reviews of defined areas of ion channel structure, biophysics, function, and pharmacology. Volume 4 follows this pattern with reviews on models of ion channel structure, calcium channels (both voltage-gated and Ca^{2+} release), $GABA_A$ receptors, epithelial Na^+ channels, mitochondrial anion channels, the follicle-enclosed *Xenopus* oocyte system, Ca^{2+}-activated K^+ channels, ion channels in molluscan neurons, and neuronal nicotinic acetylcholine receptors, something, in fact, for most areas of ion channel study. And that is exactly the value of the series. Each chapter is valuable both to the expert in the field and to the newcomer to that area who is seeking an introduction to that field.

Thus, I found the article on voltage-gated Ca^{2+} channels by Kevin Campbell and his colleagues a valuable and up-to-date summary of where this increasingly subdivided field is in terms of structure, function, and pharmacology. Likewise, the chapter by Jon Lindstrom on neuronal nicotinic receptors provided an excellent overview of an area with which I am quite unfamiliar.

This book, and the previous three volumes, should be in libraries, and my individual investigators will also find them a valuable addition to their own personal library. The book is well produced and adequately indexed and well serves its intended audience.

David J. Triggle

The Graduate School
State University of New York
Buffalo, New York 14260

JM960709+

S0022-2623(96)00709-1

Reviews in Computational Chemistry. Volume 8. Edited by Kenny B. Lipkowitz and Donald B. Boyd. VCH Publishers, Inc., New York. 1996. xxi + 324 pp. 16 × 24 cm. ISBN 1-56081-929-4. $110.00.

Volume 8 in this well-respected series continues the fine selection of topics and presentation qualities set forth by the previous members of this collection. For example, each chapter contains thorough treatment of the theory behind the topic being covered, which enhances the utility of this and previous volumes. Moreover, the background material is followed by ample timely examples culled from recent literature and the authors' current research.

Chapter 1 covers the computational chemistry of fullerenes and carbon aggregates, classes of compounds which are enjoying widespread attention. The chapter concentrates on work published since the last full review of this area in 1989 and thus contains a large number of references dated from 1990 to the present. In addition, there is a very useful section on the methodology necessary for studying these types of systems.

Chapters 2 and 3 provide a complimentary look at the challenges and applications of using effective core potentials in ab initio methods for studying transition metal and lanthanide chemistry. Chapter 2 focuses on how well these calculations predict experimental geometries and bond energies, while Chapter 3 presents an enlightening discussion of the technical aspects of these methods. Both chapters contain extensive sections on representative uses of effective core potentials in quantum mechanical calculations. Carrying on in the vein of studying the chemistry of heavier elements, Chapter 4 is a discussion of the theory and application of relativistic effects. This chapter contains a good introduction to nonrelativistic quantum mechanics followed by a clear and detailed treatment of the theory and equations employed in evaluating relativistic effects. The only shortcoming in this otherwise robust chapter is the relatively short applications section.

The volume concludes with a chapter on the ab initio calculation of NMR chemical shielding. Useful features of this discussion include a section comparing calculated and observed NMR shieldings and a detailed description of a sample shielding calculation.

As in all previous volumes in this series, both a subject and an author index are included. The preface of this volume contains a thoughtful investigation of a question of interest to all computational chemists: "How widely used is computational chemistry?" Finally, in keeping with the times, the editors maintain a Reviews in Computational Chemistry home page at http://chem.iupui.edu/.

Mark G. Bures

Abbott Laboratories
100 Abbott Park Road D47E AP10
Abbott Park, Illinois 60064-3500

JM960706X

S0022-2623(96)00706-6

Circular Dichroism and the Conformational Analysis of Biomolecules. Edited by Gerald D. Fasman. Plenum Press, New York and London. 1996. ix + 738 pp. 17 × 25.5 cm. ISBN 0-306-45152-5. $125.00.

This edited work contains 19 chapters on the application of circular dichroism (CD) and closely related chiroptical techniques to the conformational analysis of biopolymers. The biopolymers discussed include proteins, polypeptides, collagens, nucleic acids, and carbohydrates. The editor has done a fine job of giving an adequate historical and background introduction while

also providing a much needed update on advances in newer research areas.

The book contains a memorial to J. T. Yang who passed away in December 1995, and the first chapter contains a poignant and, to me, moving account, Remembrance of Things Past. A Career in Chiroptical Research, written by Yang before he died. This fascinating and well-written chapter traces the history of chiroptical phenomena from Biot and Fresnel to the present day. More importantly, it lays the historical foundation for the later chapters on the use of these methods to determine the conformation of biopolymers as seen through the eyes of one of the principal initial investigators. As a young graduate student, I used Yang's equations and the ORD and later CD methods he pioneered and was especially moved by this introductory chapter.

The subsequent chapters do not disappoint and are full of valuable technical information which would take even an expert in the areas years to accumulate. Each chapter is extensively referenced to the original journal articles. There are chapters on theoretical treatments including Theory of Circular Dichroism by Woody and Theories of CD for Nucleic Acids by Keller. Much of the book is involved with practical applications including chapters by Curtis Johnson on instrumentation and nucleic acid conformation. The editor, Gerald Fasman, has authored two fine chapters: the first on CD and membrane proteins and the second on CD studies of chaperones. There are additional chapters on the CD of collagens and carbohydrates as well as helix, sheet, and coil transitions in proteins and stopped-flow studies using CD. Also mentioned are chapters on vibrational CD and CD in the far-UV and X-ray regions as well as vibrational Raman optical activity in relation to biopolymers. Surprisingly there is no chapter on fluorescence-detected CD.

The area of chiroptical studies on biopolymers was long overdue for an up-to-date reference on current methodologies, and this book goes a long way toward meeting this need.

R. Lee Webb

Analytical Sciences Department
Smith Kline Beecham Pharmaceuticals
King of Prussia, Pennsylvania 19406

JM960707P

S0022-2623(96)00707-8

Indoles. Richard J. Sundberg. Academic Press, London. 1996. xv + 175 pp. 15.5 × 23.5 cm. ISBN 0-12-676945-1. $45.00.

This volume is the sixteenth installment of the Best Synthetic Methods series. The focus of the series previously has been on special methods, reagents, or techniques; this volume is the first of several to deal with heterocycles. In his preface, Professor Sundberg states that he has attempted to illustrate the most widely used synthetic methods in indole chemistry on the basis of the retrosynthetic concept of identifying the bonds being formed. Not only has he succeeded, but he has done an outstanding job.

The book is organized into 16 chapters. Following a brief introduction, Chapters 2−8 deal with synthesis of the indole nucleus. Each chapter describes various methods of ring formation by focusing on a particular bond(s) to be formed. For example, Chapter 2 depicts ring closure reactions that result in the formation of the N_1-C_2 bond, Chapter 3, the C_2-C_3 bond, Chapter 4, the C_3-C_{3a} bond, and so on. Chapters 6−8 highlight multiple-bond formations. The remaining chapters target introduction of substituents at various positions or reactions specific to indoles: substitution on nitrogen, introduction of substituents to C_2 and C_3, modification of 3-alkyl substituents by nucleophilic substitution, introduction of the tryptamine side chain, introduction of substituents on the carbocyclic ring, selective reduction and oxidation reactions, and synthetic elaboration of indole derivatives using cycloaddition reactions. Each chapter contains useful subheadings, practical examples of literature procedures illustrating reaction conditions for the synthesis of various indoles (the book contains nearly 100 such "experimentals" that should be helpful to the student and the practitioner; however, one wonders why the melting points of products are not given), and appropriate literature citations (into 1995). And all this in 145 pages!

The book is an absolute must for those interested in indole chemistry. Due to its small size, it can not treat indole chemistry with the same depth and breadth of larger tomes, but it describes most major classical methods and emphasizes all the newer methods available. Professor Sundberg is to be congratulated.

Richard A. Glennon

Department of Medicinal Chemistry
School of Pharmacy
Medical College of Virginia
Virginia Commonwealth University
Richmond, Virginia 23298-0540

JM960712T

S0022-2623(96)00712-1

Emerging Drugs. The Prospect for Improved Medicines. Annual Executive Briefing. Volume One 1996. Edited by W. C. Bowman, J. D. Fitzgerald, and J. B. Taylor. Ashley Publications Ltd., London. 1996. 436 pp. 20.5 × 29 cm. ISSN 1361-9195. $495.00.

This book is described as the first "Annual Executive Briefing" which covers a wide range of drugs in specific therapeutic areas and also several biological mechanisms. The book starts with a forward that should have set the stage for the remainder of the book. Entitled Emerging Drugs: the Prospects for Improved Medicines, it offered the opportunity for the authors to provide some insight based upon their considerable collective experience in the field. Instead it is a rambling account of the need for new medicines to treat major unmet medical needs and includes only two minimally relevant references to the primary literature—a missed opportunity. There are 19 chapters, each devoted to a general topic in drug discovery, including drug treatments for osteoporosis, heart failure, MI, diabetes, epilepsy, Alzheimer's disease, pain, depression, schizophrenia, cancer, viral hepatitis, fungal infections, asthma,

and inflammation. In addition there are several biomolecular mechanism-oriented chapters, including transcription factors, tyrosine kinase inhibitors, and ras farnesyl protein transferase inhibitors. Each of the chapters provides a capsule summary of the chapter topic, written by an expert in the field. As such they provide a ready reference to the topic with a number of 1996 citations included. No insight is provided as to rationale for chapter topic coverage, and certainly topics of high current interest, e.g., antivirals in addition to viral hepatitis, are omitted. Nevertheless there is credible coverage of those topics that have been chosen for the book.

One concern is the almost exclusive reliance on *Current Drugs IDbd* as the source for information. It would seem that if a particular chemical entity is not listed in *IDdb*, then it is noted as structure unknown. For example, tibolone, elcatonin, PTH, and losigamone are listed as structure not reported, but they do appear in the *USP Dictionary of USAN and International Drug Names*. Each chapter includes two point graphs entitled Research Assessment and Value Assessment, each of which consumes a full page and yet contains only a single data point. These are of dubious value and certainly could be condensed, perhaps in a summary section, if it were deemed necessary to include them at all.

At a price of $495.00/copy, this book may find its way to the bookshelves of some managers at pharmacetucial companies and in the reference section of some corporate libraries.

James A. Bristol

Parke-Davis Pharmaceutical Research
Division of Warner-Lambert Company
Ann Arbor, Michigan 49684

JM960713L

S0022-2623(96)00713-3

Chemical Synthesis. Gnosis to Prognosis NATO Advanced Science Institutes Series. Series E. Applied Sciences. Volume 320. Edited by Chrysostomos Chatgilialoglu and Victor Snieckus. Kluwer Academic Publishers, Dordrecht, The Netherlands. 1996. xi + 625 pp. 16.5 × 24.5 cm. ISBN 0-7923-4041-8. $299.00.

This book represents the proceedings of the NATO Advanced Study Institute on Chemical Synthesis: Gnosis to Prognosis, held in Ravello, Italy, May 8−19, 1994. The objective of this meeting was to survey existing knowledge, current research, and future directions of chemical synthesis as related to important interdisciplinary themes of science in the 1990s, i.e., bioactive molecules, synthetic materials, and molecular recognition. World-recognized leaders in organic and bioorganic chemistry addressed these topics in a most authorative, exciting, and informative manner.

The proceedings of the meeting are recorded in 27 illuminating articles each about 15−30 pages in length and including a comprehensive list of references. Topics related to chemical synthesis at its fundamental levels range from articles focusing on modern methods (D. H. R. Barton, G. Cainelli, V. Snieckus), to asymmetric catalysis (H. Brunner, H. B. Kagan), to target-oriented strategies (S. Hanessian). The convergence of chemical synthesis and biology is evidenced by the chapters that treat biomimetic catalysis (R. Breslow), the design of enzyme mimics (J. K. M. Sanders) and inhibitors (P. A. Bartlett), and catalytic antibodies (D. Hilvert) and address the topic "Chemical Etiology of the Natural Nucleic Acids Structure" (A. Eschenmoser). Receptors and molecular recognition and function are addressed in chapters entitled "Oligonucleotide-Directed Recognition of Double-Helical DNA" (C. Hélène), "Self-Assembly in Chemical Synthesis" (J. F. Stoddart), "Transduction of Molecular Interactions into Macroscopic Properties" (D. N. Reinhoudt), and "New Homocalixarenes and Catananes: From Molecular Recognition to Mechanical Bonds" (F. Vögtle). Synthetic chemistry of particular interdisciplinary importance is the topic of articles concerning noncovalent bond interactions (G. M. Whitesides, J.-M. Lehn), radical-based polymer modification (D. Chatagilialoglu), and transition metal-catalyzed functional polymer synthesis (F. Ciardelli, R. Waymouth).

Although the book apparently was assembled from "camera-ready" copy, it is well edited and uniform and contains an adequate subject index. The stimulating and thorough address of a variety of topics of current interest to both medicinal and organic chemists by world-recognized authorities in synthetic chemistry makes this book one which will be of value to most chemists.

Staff

JM960714D

S0022-2623(96)00714-5

Lipophilicity in Drug Action and Toxicology. Edited by V. Pliška, B. Testa, and H. van de Waterbeemd. VCH, Weinheim, Germany. 1996. xxv + 438. 17.5 × 24.5 cm. ISBN 3-527-29383-3. DM 198.00.

This is Volume 4 in the series *Methods and Principles in Medicinal Chemistry* edited by R. Mannhold, H. Kubinyi, and H. Timmerman. In 23 chapters with 40 individual contributors who are experts in various aspects of the subject, the book provides a much needed, single-volume, comprehensive treatment of lipophilicity as a key molecular property impacting biological systems, primarily with respect to drug action. Over the past three decades there has progressively developed a keen appreciation of the importance of lipophilicity in biological systems and drug design. This book gives an excellent account of the subject as it stands today.

The first two chapters provide an introductory and historical review of lipophilicity respectively. Some eight chapters, including an overview chapter, cover different methods for the measurement and calculation of lipophilicity. Various fundamental and theoretical aspects are the subject matter in five more chapters. Lipophilicity in amino acids and peptides is specifically covered in three chapters. Other individual chapters discuss lipophilicity in relation to cellular permeability, membrane transport and cellular distribution, biological

response to drugs and endogenous ligands, metabolites, and environmental hazard assessment. Of particular interest to medicinal chemists are chapters 2, 4, 9, 14, 15, 20, and 23.

The overall standard of writing is pleasing and the style commendably consistent within the limitations of an edited book. The book is well referenced and indexed, and the references are up to date as evidenced by the fact that of a total of 1161 references 263, or 23%, are from 1993 to 1996. The chapters are conveniently subdivided into small sections with descriptive titles so that it is easy to locate specific subject matter. A nice feature is the definition of abbreviations and symbols at the beginning of each chapter and an appropriate number of illustrative figures and tables are provided. The inclusion of toxicology in the book title is questionable since, except for one chapter, there is little discussion of this in the book. The quality of book production is high except for the presence in some sections of typographical and grammatical errors. In the one page Personal Forward no fewer than six such errors were found, and four were identified on the first page of chapter 1. Fortunately this was not characteristic of the remainder of the volume.

This book is recommended for medicinal chemists, computational chemists involved in drug design, biochemists, and some biologists, particularly those involved in drug research and the study of ligand−receptor interactions. It will also be of interest to environmental scientists. The cost is in line with that for other specialized subject books.

John G. Topliss

Department of Medicinal Chemistry
College of Pharmacy
University of Michigan
Ann Arbor, Michigan 48109-1065

JM960775B

S0022-2623(96)00775-3

Palladium Reagents and Catalysis. Innovations in Organic Synthesis. By Jiro Tsuji. John Wiley and Sons, Inc., New York. 1996. xiv + 560 pp. 16 × 23.5 cm. ISBN 0-471-95483-7. $150.00.

The use of palladium reagents in organic synthesis is a field which has seen a tremendous explosion in the level of activity in recent years. Since virtually every chemist involved with organic synthesis has at some time used a palladium-based reaction, the number of reports in the literature is immense and very difficult to keep up with. A review of this field is sorely needed, and this book addresses that need. Because a large fraction of the activity has occurred recently, earlier monographs by Tsuji in 1980 and R. F. Heck in 1985 are a bit dated. The most recent references in this book are to articles published in 1994.

Overall, this is an excellent book. The most impressive thing about this book is its thoroughness: 2422 literature citations have been included. The book is also quite easy to read since it is very well-illustrated and includes an illustrated reaction equation for virtually every one of the literature citations. This book was obviously a tremendous undertaking, and there are numerous very minor mistakes (the author admits this) which do not really affect the readability of the book. The only negative comment I can make about the book concerns the index, which is not very consistent; many examples are missed by the index.

The book is organized into five chapters. The Table of Contents is very detailed and descriptive and provides the best guide for finding the topic of interest. Every chapter except chapter 4 has references at the end; in chapter 4 the references are at the end of each subsection. As the author points out, there is no perfect way to organize such a vast body of information, and the author has chosen to organize the reaction chapters based upon whether the reactions are catalytic (chapter 4) or not catalytic (chapter 3) in palladium. At first, this would appear to be an awkward classification scheme, but it actually works quite well since the author has chosen to include reactions which are catalytic but require a secondary oxidant in the noncatalytic section. The chapter dealing with catalytic reactions (chapter 4) is 400 pages long (about two-thirds of the book). The chapters are subdivided further by substrate or reaction-type classifications. The first two chapters are introduction chapters, which focus on mechanistic aspects of organopalladium chemistry, descriptive chemistry of organopalladium species, and how the combination of reactions can lead to processes that are either catalytic or stoichiometric in palladium. These chapters adequately provide the minimum background information necessary to understand the processes discussed in later sections. A fifth chapter has been added to include reactions which do not fit into the author's other classification schemes.

In summary, this book is highly recommended for practitioners of organic synthesis due primarily to its extremely comprehensive nature.

James W. Herndon

Department of Chemistry and Biochemistry
University of Maryland
College Park, Maryland 20742-2021

JM9607764

S0022-2623(96)00776-5

The Chemistry of Heterocycles. T. Eicher and S. Hauptmann. Translated by H. Suschitzky and J. Suschitzky. G. Thieme, Stuttgart, 1996. X + 504 pp. 17 × 24 cm. ISBN 3-13-100511-4. DM 84.00.

This introductory text on heterocyclic chemistry provides a concise, up-to-date overview of this subject. The first chapter defines heterocyclic chemistry and presents in simple terms the types of rings that can be formed and those heteroatoms which can reside in them. The authors point out that, due to the complexity of the subject, this text mainly covers those heterocycles containing oxygen (O), sulfur (S), and nitrogen (N). Chapter 2 focuses on heterocyclic nomenclature. When compared to other introductory texts on the market today, this book's treatment of nomenclature outshines them all. The authors cover the major points and provide some excellent illustrations. Chapters 3−7

cover, consecutively, 3- to 7-membered ring heterocycles containing O, S, N, and combinations thereof. Chapter 8 concentrates on the chemistry of a few, selected larger ring systems. Chapter 8 refers the student/reader to other textbooks, reference material, and current literature available on heterocyclic chemistry. Chapter 9 is the subject index.

Chapters 3−7 are subdivided into sections depending on the heteroatom in question. Physicochemical and spectral features of each heterocycle are provided as well as industrial and/or pharmaceutical uses. The synthetic pathways leading to the desired heterocycle are approached in a retrosynthetic manner. This unique feature allows the student/reader to visualize how these rings can be constructed and what type of synthons are required for the various preparative pathways depicted. At the end of each chapter, a summary is provided highlighting the important chemical aspects covered. This summary is followed by current, selected references which are mentioned in the chapter.

As a teacher of heterocyclic chemistry, I find this textbook a refreshing entry to the current textbooks on heterocyclic chemistry. It has many pluses, but unfortunately some of the minuses overshadow them. This textbook is chockfull of misspellings and typos, *e.g.*, triphenylphosphane instead of triphenylphosphine. In several places an azine nitrogen is said to contribute a *pair* of electrons to the aromaticity of the ring system. Potassium thiocyanate is referred to as potassium rhodate, and chemists are cited (name and year) in the text, but a reference to their work doesn't appear at the end of the specific chapter. Prior to adopting this book as a classroom text, or for that matter purchasing it for inclusion in one's personal collection, it must undergo a major facelift. Lastly, the price of this book is approximately one-third more than other current textbooks on the market. In addition to quality, students deserve the best "bang" for their buck.

Raymond P. Panzica

Departments of Biomedical Science and Chemistry
University of Rhode Island
Kingston, Rhode Island 02881

JM960777W

S002202623(96)00777-7

Drug Prototypes and their Exploitation. By Walter Sneader. John Wiley and Sons Ltd. Baffins Lane, Chichester, West Sussex PO19 1UD, England. 1996. xii + 788pp. 19.5 × 25 cm. ISBN 0-471-94847-0. $129.95.

This history of medicinal chemistry centers on modifications of drug prototypes with insights concerning the discovery of new entities, the development of clinically significant alterations, and/or the influence of marketing on molecular modifications. The genealogical rather than pharmacological organization of this work provides the reader with a refreshingly different approach to the topic. A useful guide to the book's organizational structure and a comprehensive index are provided. A phenomenal amount of well-referenced information starting from ancient times and including minerals and inorganics, alkaloids and other plant materials, prototypes derived from studies on animals and humans, or derived from microorganisms, and the screening of synthetic compounds or through serendipity, is available to the reader. There are numerous stories which educators will find useful for constructing lectures.

Unfortunately, there are some glaring errors such as showing arsenophenylglycine as a morphine analogue on p 37; formatting ethylhydrocupreine and isooctylhydrocupreine of the same absolute configuration as quinine under the quinidine structure (p 116); not showing the correct bond angles for substitutions on the azabicyclo[2.2.2]octane ring; and showing colchicine (p 118), physostigmine (p 124), and many other optically pure drugs as racemates. Not always, but generally, little attention is paid to stereoisomeric (absolute and geometric) or regioisomeric concepts in drug design. This work is inadequate as an analysis of modern-day structure−activity correlations, receptor binding studies, and the use of techniques such as X-ray diffraction, NMR, computer modeling, etc. There is no mention of "rational drug design". Ephedrine and pseudoephedrine stereoisomers are recognized (p 165), but for the most part it is not clear how analogues of these natural products are related by absolute configuration. Short statements about the major use of a given drug makes for uninteresting reading—sort of like reading a dictionary. The mechanism by which drugs work is superficial at best; for example, in the case of epipodophyllotoxin analogues (p 240) there is no discussion of DNA cleavage or inhibition of topoisomerase II. Thus, chemists and biologists will need to corroborate what is said about the science of these drugs with other sources. Whereas the historical perspective is likely credible, the scientific perspective is mixed and often shallow. The stories are great fun to read.

Donald T. Witiak

University of Wisconsin
425 N. Charter St.
Madison, Wisconsin 53706

JM960778O

S0022-2623(96)00778-9

Neurotherapeutics Emerging Strategies. Edited by Linda M. Pullan and Jitendra Patel. Humana Press, Totowa, NJ. 1995. x + 434 pp. 16 × 23.5 cm. ISBN 0-89603-306-6. $125.00.

This book, as pointed out in the preface, is an attempt to provide some diverse perspectives in the search to find new drugs for treatment of central nervous system disorders. The underlying premise is that the discovery of new drugs must be based on an understanding of both the clinical and basic sciences. Beginning with psychiatric conditions and ending with neurologic disorders, each of the chapters examines a specific disease, including clinical features and existing treatments. For conditions where there is no established treatment, the emphasis is quite understandably on basic research and on the underlying mechanisms of the disease.

In general, *Neurotherapeutics* achieves its goals. Chapters clearly introduce and define the disorder

under consideration, as well as historical approaches to treatment. This introductory material is followed by extensive reviews and discussions of current areas of research, as well as potential molecular targets for pharmacotherapy. The authors are surprisingly (and refreshingly) blunt in their comments, noting that existing therapies remain based on serendipitous findings nearly three decades old and that the widely used models of CNS disorders result mostly in the identification of "me too" compounds offering only incremental improvements in therapy.

By way of specifics, chapters average 30−50 pages in length and subject matter is clearly identified by subheadings. The excellent practice of including a conclusion at the end of each chapter is helpful for the reader. The 10 chapters (schizophrenia, affective disorders, anxiety and panic disorders, acute and chronic disease, the control of pain, epilepsy, stroke, and Huntington's, Parkinson's, and Alzheimer's diseases) are extremely well cited, making the book a valuable reference for source material. On the other hand, *Neurotherapeutics* suffers from a lack of illustration, particularly as this relates to chemical structures. The use of company identifier numbers rather than chemical names further complicates the matter for those not actively engaged in a particular field of research. The tight, review like style coupled with the presence of jargon requires a prior familiarity with central nervous system concepts. There is a lack of integration among the chapters that is particularly notable in the chapters considering neurologic conditions which leave the reader ignorant of the attending psychiatric complications.

These items notwithstanding, *Neurotherapeutics* would be of use to the clinician wanting a better understanding of current research approaches in the neurosciences or to the basic scientist wanting a quick update on areas beyond their expertise. Unfortunately, at $125 it is probably too expensive to include on the office shelf and should appropriately be found in the department library.

John Wm. Ferkany

Oread BioSafety Center
Division of Pharmacology
Farmington, Connecticut 06032

JM9606195

S0022-2623(96)00619-X

Biological Models in Radiopharmaceutical Development. By R. M. Lambrecht. Kluwer Academic Publishers, Boston, MA. 1996. x + 269 pp. 16.5 × 24.5 cm. ISBN 0-7923-3836-7. $136.00.

The rapid growth of radiopharmaceuticals and their profound impact on medicine have been facilitated by rigorous testing in biological models. From the beginning of nuclear medicine, it has been recognized that species differences could influence the choice of animal models for radiotracer development. This extensive volume serves as an overview of the global literature on the subject from 1983 to June 1995, providing options for investigators of diseases to select the most useful animal models for evaluation. The text opens with an introduction including guidelines for animal research as well as moral and ethical considerations. Three chapters then follow: Design of Candidate Radiopharmaceuticals, Concept of Biological Model, and Tomographic Physiological Chemistry. Throughout these chapters the correlation between the disease state and particular animal model is documented by the appropriate reference citation(s) from over 2500 journal references in the last 166 pages of the book. For convenience these references are listed alphabetically by first authors' last names. Given the nature of the volume, there is no need for an index, but it does contain a useful glossary of abbreviations and a reading list of related monographs on nuclear medicine. Clearly this book will be a valuable addition to the libraries of physicians and radiopharmaceutical chemists as well as to those of professionals serving on committees concerned with the ethics of animal research.

Crist N. Filer

NEN Life Science Products
Boston, Massachusetts 02118

JM960708H

S0022-2623(96)00708-X

Models for Assessing Drug Absorption and Metabolism. Edited by Ronald T. Borchardt, Philip L. Smith, and Glynn Wilson. Plenum Press, New York. 1996. xxii + 444 pp. 15.5 × 28 cm. ISBN 0-306-45243-X. $95.00.

This is Volume 8 in the *Pharmaceutical Biotechnology* series. It addresses a topic of major importance to medicinal chemists, i.e. the rational design of new drug substances to optimize their interaction with therapeutic targets and to circumvent biological barriers (e.g. intestinal mucosa, liver, blood−brain barrier). The biopharmaceutical properties of a new drug candidate can be evaluated by a variety of recently developed in vitro and in situ assay systems. These models are widely described in the scientific literature; however, experimental details are often difficult to discern. In this volume, the editors have provided a single source to the details of these methodologies required to establish, validate, and implement these model systems. This is accomplished in 23 clearly written and detailed chapters.

This first chapter provides an overview of general principles in the characterization and use of model systems in biopharmaceutical studies. Chapters 2−6 describe methodologies for studying drug absorption and metabolism after oral administration using various intestinal preparations. Methodologies for other epithelial barriers, e.g. buccal, nasal, respiratory, alveolar, pulmonary, skin, vaginal, and occular epithelium, are the topics of Chapters 7 and 16−23. Methodologies for studying elimination barriers such as the liver and kidney are described in Chapters 8−12. Methodologies used to examine drug transport and metabolism at the level of the blood−brain barrier and the blood−cerebrospinal barrier are considered in Chapters 13−15. All chapters conclude with a comprehensive list of refer-

ences. In addition, the book has complete subject and author indices.

As a result of recent advances in combinatorial approaches by medicinal chemists, the need for more rapid screens for evaluating biopharmaceutical properties of drug candidates has taken on increased importance. Thus, the methodologies described in this volume are particularly relevant.

Staff

JM960773R

S0022-2623(96)00773-X

Analytical Profiles of Drug Substances and Excipients. Volume 24. Edited by Harry G. Brittain. Academic Press, Inc., San Diego, CA. 1996. xi + 619 pp. 15.5 × 23.5 cm. ISBN 0-12-260824-0. $99.00.

This is Volume 24 of the *Analytical Profile* series; it presents highly detailed compilations of available physical and chemical data, analytical methods, routes of compound preparation, distribution, metabolism, and excretion data and a brief description of pharmacology for drug substances and excipient materials. The current volume consists of such compilations for carbenoxolone sodium, clarithromycin, crospovidone, fluvoxamine maleate, gadoteridol, guar gum, mafenide acetate, malodextrin, malmefene hydrochloride, polyvinyl alcohol, sertraline hydrochloride, solasodine, starch, and tobramycin. Each substance is thoroughly profiled with graphical representations of physical and chemical data. Detailed references are provided for each of the described compounds. A cumulative index is provided to enable location of the more than 400 substances profiled in the series.

Volume 24 of the *Analytical Profiles* series provides a reference which will be of value to all concerned with the detection and analysis of pharmaceutical products. Appropriate institutional library access is recommended.

Staff

JM9606204

S0022-2623(96)00620-6

Biological Reactive Intermediates V. Basic Mechanistic Research in Toxicology and Human Risk Assessment. Advances in Experimental Medicine and Biology. Volume 387. Edited by Robert Snyder, James J. Kocsis, I. Glenn Sipes, George F. Kalf, David J. Jollow, Helmut Greim, Terrence J. Monks, and Charlotte M. Witmer. Plenum Press, New York. 1996. xiv + 461 pp. 17 × 25.5 cm. ISBN 0-306-45197-2. $125.00.

This volume represents the proceedings of the Fifth International Sumposium on Biological Reactive Intermediates (BRI V) held January 4−8, 1995, in Munich, Germany. Subjects covered include the chemistry and formation of biological reactive intermediates, cellular damage and control of gene expression by biological reactive intermediates, impact on cellular redox state, nitric oxide, organ specific effects of biological reactive intermediates, organ−organ interactions, modeling of bioactivation reactions, and linking of mechanistic studies to risk assessment. The various topics are presented and/or reviewed in 55 specialized articles, each of 10 pages or less. Despite the large number of articles by authors of differing nationalities, the quality and uniformity of the presentations are excellent. Each article concludes with a comprehensive list of references. An author index and a brief subject index are provided for the volume.

Biological Reactive Intermediates V provides new insights into the mechanisms of pathology and toxicology that will be of interest to scientists of various disciplines. Because of the diversity of topics covered, the book will be of greatest value for information retrieval rather than for general reading. Appropriate institutional library access is recommended.

Staff

JM960621W

S0022-2623(96)00621-8

The Drug Development Process. Increasing Efficiency and Cost-Effectiveness. Edited by Peter G. Welling, Louis Lasagna, and Umesh V. Banakar. Marcel Dekker, Inc., New York. 1996. xviii + 447 pp. 16 × 23.5 cm. ISBN 0-8247-9727-2. $150.00.

This is the 76th volume of a series of textbooks and monographs *Drugs and the Pharmaceutical Sciences*. In this book various aspects of the historically slow and expensive drug development process are examined in 16 chapters. These articles are divided into seven parts: (I) Changing Perspectives in Drug Development, (II) Process Challenges in Drug Development, (III) Pharmaceutical and Formulation Factors, (IV) Drug Design, Pharmacokinetics, and Toxicology, (V) Chemotherapy, (VI) Clinical Studies and the Use of Clinical Research Organizations, and (VII) European and Japanese Approaches.

As indicated by the titles of the seven parts, the contributors cover a wide range of topics. The presented subjects treat various phases of drug development from discovery of a screening technique to synthesis of compounds for testing to preclinical development to phase I, II, and III clinical trials to filing of a New Drug Application, to commercial launch and marketing. Although none of the various phases of drug development is treated comprehensively, e.g. coverage of the discovery phase is limited to a single specialized chapter dealing with computer-assisted drug design, almost all involved with the discovery and development of new drug products will be interested in selected chapters. Presentations considering legal issues and their relationship to cost effectiveness, opportunities for optimal use of contract research organization, and foreign drug development achievements are highlights of the book.

Clearly, when one considers the length of time required to develop a new drug product and the overall cost of the process—estimated to be over $300 million for a single entity—there is much room for improving

the drug development process. All concerned with the overall process will value at least parts of this volume.

Staff

JM960774J

S0022-2623(96)00774-1

Eicosanoids From Biotechnology to Therapeutic Applications. NATO ASI Series A: Life Sciences Vol. 283. Edited by G. C. Folco, B. Samuelsson, J. Maclouf, and G. P. Velo. Plenum Press, New York in cooperation with NATO Scientific Affairs Division. 1996. viii + 208 pp. 17 × 25.5 cm. ISBN 0-306-45286-3. $79.50.

This book is a timely review at a moment when the ability to therapeutically modulate the eicosanoid cascade is undergoing rapid change. The book is made up of 18 chapters that vary from 6 to 18 pages in length and contain from as few as 19 to more than 100 references. Each article is written by experts in the field, and a good general subject index is provided.

Most of the chapters in this book focus only on the lipoxygenase or the prostanoid branches of arachidonic acid metabolism. One excellent exception to this general rule is chapter 5 which provides a detailed summary of all aspects of "Metabolism of Eicosanoids in Mammalian Cells".

About half of the book is on the leukotrienes, and in this area it covers aspects of LT biosynthesis, receptors, biosynthesis inhibitors, and receptor antagonism. Chapter 13 provides a nice summary of the current view of *Cys*-LT receptor classification and nomenclature. Chapter 16 focuses on clinical applications of leukotriene modulators. This chapter is particularly timely in that it includes cysteinylleukotriene receptor antagonists such as ONO1078 and ICI204,219 (Accolate™) that have only recently received regulatory approval. Also reviewed are synthesis inhibitors such as zileuton and ZD2138 that are under advanced clinical investigation. Chapter 18 highlights FLAP inhibitors with a focus on Bay X 1005.

In the prostaglandin area the focus is on the discovery of multiple pathways (COX-1 and COX-2) for prostaglandin synthesis and the impending impact of selective COX-2 inhibitors as new therapeutics. Although COX-2 selective inhibitors such as DuP 697, SC-58125, and L-745,337 are discussed in chapter 3, they are at much earlier developmental stages than the LT modulators described above and there is much less data supplied on them. Chapter 14 is an excellent review of the prostanoid receptors.

Peter R. Bernstein

Medicinal Chemistry Department
ZENECA Pharmaceuticals Group
1800 Concord Pike
Wilmington, Delaware 19850-5437

JM960779G

S0022-2623(96)00779-0

Books of Interest

Lessons from Animal Diabetes VI. Edited by Eleazar Shafrir. Birkhauser Boston, Cambridge, MA. 1996. xiii + 420 pp. 16 × 24 cm. ISBN 0-8176-3876-8. $120.00.

Methods in Molecular Biology. Volume 66. Epitope Mapping Protocols. Edited by Glenn E. Morris. The Humana Press, Inc., Totowa, NJ. 1996. xiii + 416 pp. 16.5 × 23 cm. ISBN 0-89603-375-9. $79.50.

Physical Chemistry. Second Edition. By Robert A. Alberty and Robert J. Silbey. John Wiley & Sons, Inc., New York. 1996. x + 950 pp. 21 × 26 cm. ISBN 0-471-10428-0. $79.95.

Liver Innervation and the neural control of hepatic function. Edited by Takashi Shimazu. John Libbey & Company Limited, London. 1996. xii + 484 pp. 17.5 × 24.5 cm. ISBN 0-86196-535-3. £60.00.

Protein Phosphorylation. Edited by Friedrick Marks. VCH Publishers, Weinheim, Germany. 1996. xxiii + 381 pp. 17.5 × 24.5 cm. ISBN 3-527-29241-1. DM 198.00.

Methods in Molecular Biology. Volume 61. Protein and Peptide Analysis by Mass Spectrometry. Edited by John R. Chapman. The Humana Press, Inc., Totowa, NJ. 1996. x + 350 pp. 16 × 23.5 cm. ISBN 0-89603-345-7. $69.50.

The Laboratory Practice of Clinical Toxicology. By Eleanor Berman. Charles C. Thomas, Publisher, Springfield, IL. 1996. xiii + 206 pp. 18.5 × 26 cm. ISBN 0-398-06581-0. $53.95.

Biomedical Functions and Biotechnology of Natural and Artificial Polymers. Edited by Manssuar Yalpani. ATL Press, Inc., Shrewsbury, MA. 1996. vi + 283 pp. 16 × 23.5 cm. ISBN 1-882360-02-08. $225.00.

JM960618C

S0022-2623(96)00618-8

The Chemical Physics of Fullerenes 10 (and 5) Years Later. Series E: Applied Sciences. Volume 316. Edited by Wanda Andreoni. Kluwer Academic Publishers Group, Dordrecht, The Netherlands. 1996. xi + 498 pp. 16.5 × 24.5 cm. ISBN 0-7923-4000-0. $239.00.

Strategies in Size Exclusion Chromatography. ACS Symposium Series 635. Edited by Martin Potschka and Paul L. Dublin. American Chemical Society, Washington, D.C. 1996. xiii + 415 pp. 15.5 × 23.5 cm. ISBN 0-8412-3414-0. $109.95.

Immunopharmacology Reviews. Volume 2. Edited by John W. Hadden and Andor Szentivanyi. Plenum Publishing Corporation, New York. 1996. xiv + 443 pp. 16 × 23 cm. ISBN 0-306-45239-1. $129.50.

Chemical Research Faculties. An International Directory. American Chemical Society, Washington, D.C. 1996. xlv + 1248 pp. 22 × 28.5 cm. ISBN 0-8412-3301-2. $199.75.

Fundamentals of Organic Chemistry. Fifth Edition. By T. W. Solomons. John Wiley & Sons, Inc., New York. 1996. xxviii + 1139 pp. 18.5 × 26 cm. ISBN 0-471-14649-8. $86.95.

JM9607055

S0022-2623(96)00705-4

Methods in Molecular Biology. Volume 64. Protein Sequencing Protocols. Edited by Bryan John Smith. The Humana Press, Totowa, NJ. 1997. xiv + 375 pp. 16 × 23.5 cm. ISBN 0-89603-353-8. $69.50.

Methods in Molecular Biology. Volume 67. PCR Cloning Protocols. From Molecular Cloning to Genetic Engineering. Edited by Bruce A. White. The Humana Press, Totowa, NJ. 1997. xiv + 490 pp. 16.5 × 23 cm. ISBN 0-89603-343-0. $69.50 (pbk).

Methods in Molecular Biology. Volume 68. Gene Isolation and Mapping Protocols. Edited by Jacqueline Boultwood. The Humana Press, Totowa, NJ. 1997. x + 318 pp. 16.5 × 23 cm. ISBN 0-89603-382-1. $69.50 (pbk).

Methods in Molecular Biology. Volume 69. cDNA Library Protocols. Edited by Ian G. Cowell and Caroline A. Austin. The Humana Press, Totowa, NJ. 1997. x + 321 pp. 16 × 23.5 cm. ISBN 0-89603-383-X. $69.50.

Methods in Molecular Biology. Volume 73. Neuropeptide Protocols. Edited by G. Brent Irvine and Carvell H. Williams. The Humana Press, Totowa, NJ. 1997. xiii + 386 pp. 16 × 23.5 cm. ISBN 0-89603-399-6. $69.50.

Methods in Molecular Medicine. Gene Therapy Protocols. Edited by Paul D. Robbins. The Humana Press, Totowa, NJ. 1997. xiv + 432 pp. 16.5 × 23 cm. ISBN 0-89603-307-4. $74.50 (pbk).

Novel Strategies in the Design and Production of Vaccines. Advances in Experimental Medicine and Biology. Volume 397. Edited by Sara Cohen and Avigdor Shafferman. Plenum Publishing Corporation, New York. 1996. xv + 197 pp. 17 × 25.5 cm. ISBN 0-306-45211-1. $75.00.

Antiviral Chemotherapy 4. New Directions for Clinical Application and Research. Advances in Experimental Medicine and Biology. Volume 394. Edited by John Mills, Paul A. Volberging, and Lawrence Corey. Plenum Publishing Corporation, New York. 1996. xiii + 440 pp. 17 × 25.5 cm. ISBN 0-306-45294-4. $120.00.

Cytochrome C. A Multidisciplinary Approach. Edited by Robert A. Scott and A. Grant Mauk. University Science Books, Sausalito, CA. 1996. vi + 738 pp. 18 × 26 cm. ISBN 0-935702-33-4. $85.00.

Biological Membranes. A Molecular Perspective from Computation and Experiment. Edited by Kenneth M. Merz, Jr., and Benoit Roux. Birkhauser Boston, Newark, NJ. 1996. xiii + 593 pp. 18 × 24 cm. ISBN 0-8176-3827-X. $99.50.

JM960780F

S0022-2623(96)00780-7