Book Reviews

Studies in Natural Products Chemistry, Vol. 15, Structure and Chemistry (Part C). Edited by Atta-ur-Rahman. Elsevier, Amsterdam. 1995. xv + 577 pp. 17 × 24.5 cm. ISBN 0-444-82083-3. $322.75.

This book very adequately summarizes some of the more important recent developments in natural products chemistry and emphasizes both structural elucidation and pharmacological studies. Chapter headings and authors are as follows, with short clarifying remarks added between parentheses where appropriate:

1. Structure–Activity Relationship of Highly Sweet Natural Products by A. D. Kinghorn, F. Fullas, and R. A. Hussain. 2. Structural Studies on Chemical Constituents of Echinoderms, by L. Minale, R. Riccio, and F. Zollo (these turn out to be mostly steroidal or quinoidal compounds). 3. Recent Advances in the Chemistry of Diterpenoids from *Rabdosia* Species by Y. Takeda and H. Otsuka (*Rabdosia* spp. are herbs belonging to the mint family). 4. Structural Elucidation of Saponins by G. Massiot and C. Lavaud (a useful summary of all known methods for the determination of saponins). 5. The Chemistry of Unusual Terpenoids from the Genus *Eremophila* by E. L. Ghisalberti. 6. Marine Sesquiterpene/quinones by R. J. Capon (covers stereochemistry and biological activity). 7. Antimicrobial Activity of Amphibian Venoms by G. G. Habermehl (amphibians covering toads, frogs, salamanders, and also newts). 8. Bioactive Metabolites of the Genus *Phomopsis* by Y. S. Tsantrizos (*Phomopsis* fungi are plant pathogens). 9. Detection of Cardenolides by ELISA in Plant Sciences by K. Yoshimatsu, J. Sawada, M. Jaziri, and K. Shimomura (ELISA standing for competitive enzyme-linked immunosorbent assay). 10. Xenocoumarins and Related Biologically Active Dihydroisocoumarins by B. V. McInerney and W. C. Taylor (these natural products are obtained from the culture broth of bacteria belonging to the genus *Xenorhabdus*). 11. CD of Carbohydrate–molybdate Complexes by Z. Shah, M. Geiger, Y. Al-Abed, T. H. Al-Tel, and W. Voelter (this physical method can throw some light on the stereochemistry of C-2 and C-3 hydroxyl groups). 12. Screening of Oncogene Function Inhibitors from Microbial Secondary Metabolites by K. Umezawa. 13. Recent Advances in the Chemistry of *Gelsemium* Alkaloids by H. Takayama and S. Sakai. 14. Chemistry, Biochemistry and Chemotaxonomy of Lupine Alkaloids by K. Saito and I. Murakoshi (including data on 44 new alkaloids).

The structures are well drawn, and the printing is of good quality. Extensive references and a subject index are provided.

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JM9503310

Psychopharmacology: The Fourth Generation of Progress. Floyd E. Bloom and David J. Kupfer, Editors-in-Chief. Raven Press Publishers, New York. 1994. xliii + 2002 pp. 22.5 × 28.5 cm. ISBN 0-7817-0166-x. $175.00.

What is today the American College of Neuropsychopharmacology (ACNP) was founded in November 1960 by a few dozen basic scientists and clinicians with an interest in the biological abnormalities associated with mental illness and the diagnosis and treatment of these disorders. As the college grew in size and stature, it celebrated the discipline by publishing a monograph approximately every decade covering the major advances and trends in the field. The present work, the fourth in the series, is in many ways the most ambitious and comprehensive. Contained within the 2002 pages are 163 chapters written by 317 authors, all of whom are recognized authorities in either basic or clinical psychopharmacology. The aim was to prepare a volume containing sufficient background information not only to be of value to novices but that would also serve as a reference for experts in the field. Thanks to the quality of the contributors and the tight editorial supervision, these goals have been achieved.

The text is divided into three sections, with the first covering preclinical research. Most of the 69 chapters in this section are devoted to individual neurotransmitter or hormone system as they pertain to mental illness and psychotherapy. The section begins with descriptions of contemporary laboratory methods in basic neurosciences, from molecular biology to electrophysiology and cytology. The final 12 chapters cover integrative topics such as animal models of psychiatric disorders and molecular and cellular mechanisms of brain development.

The second section, which focuses on clinical issues, contains 88 chapters in 12 topic areas, including clinical methods for studying psychiatric illnesses, mood disorders, schizophrenia, anxiety, geriatric, neurological, personality, sleep, and childhood disorders, and substance abuse. The section begins with a discussion of some basic tools used for clinical research such as positron and single-photon emission tomography and the DSM-IV.

The final section, entitled Special Topics, contains six chapters covering a potpourri of subjects including ethical considerations in genetic screening, the economic evaluation of drug treatment for psychiatric disorders, and strategies for drug design.

Given the quality of the chapters, and the comprehensive coverage of the field, this volume is indispensible for any department, institution, or individual involved in basic or clinical research in psychopharmacology. Chemists will find it particularly useful as a

guide for identifying therapeutic areas ripe for new drug synthesis and development.

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JM950332S

Buprenorphine: Combatting Drug Abuse with a Unique Opioid. Edited by Alan Cowan and John W. Lewis. John Wiley and Sons, Inc., New York. 1995. xii + 326 pp. 16.5 × 24 cm. ISBN 0-471-56198-3. $69.95.

In the early 1970s, several pharmaceutical companies were actively pursuing the discovery of a nonaddictive opioid analgesic. These efforts coincided with the efforts of many other scientists who were attempting to understand mechanisms of addition and abuse liability. Numerous important discoveries were made, and one of these was the discovery of buprenorphine. Buprenorphine was initially recognized to have a very low addictive liability and was developed for its opioid analgesic properties. More recently, its potential for the treatment of drug abuse, particularly opiate abuse, has been characterized. This very important therapeutic use was realized because of the perseverance and innovative efforts of many scientists, and this book is a timely summary of their findings.

The pharmacology of buprenorphine in laboratory animals and humans is comprehensively reviewed in this book. As conveyed in the title, buprenorphine is a unique agent both with regards to its pharmacodynamic and pharmacological properties. This book provides an understanding of how both of these properties impact on its overall activity and effectiveness to treat opiate abuse. The book further details the steps involved in the development of buprenorphine for the treatment of drug abuse and, in doing this, provides an understanding of the challenges involved in discovering such medicines.

This book consists of 17 chapters which are organized into Chemistry; Preclinical Pharmacology; Assay, Metabolism and Pharmacokinetics; Clinical Pharmacology and Evaluation; Studies Related to Treatment of Substance Abuse; and Perspective sections. The chapters are written by highly experienced researchers in both opioid and drug abuse research. I found the book very easy to read. The chapters are well written, and the information presented is thoroughly referenced. The chapters are ordered so that the subjects being discussed flow in a logical way from one to another. In each chapter, sufficient background information was provided for the reader to appreciate the importance of the research, the characteristics of the various assays, and the significance of the findings. Often the authors provided their own perspective of the relevance of the findings. Throughout the book, the authors succeeded in characterizing data from complex studies in a way that should be readily understood by the general scientific community.

Overall, the book provides a thorough review of the pharmacology of buprenorphine and its potential for treating opiate abuse. While doing this, it allows the reader to appreciate the importance of drug abuse research, how far it has advanced, and why many feel the discovery of medicines for the treatment of drug abuse is feasible. The book identifies in a global sense the steps required to develop a novel agent for the treatment of drug abuse. Thus, the book should be valuable reading to scientists involved or interested in drug abuse research.

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JM950334C

The Anticancer Drugs. Second Edition. By William B. Pratt, Raymond W. Ruddon, William D. Ensminger, and Jonathan Maybaum. Oxford University Press, New York. 1994. viii + 352 pp. 17.5 × 25 cm. ISBN 0-19-506739-8. $39.95 (paperback).

The Anticancer Drugs reviews the field of cancer chemotherapy, including some of the most recent approaches to biological treatments of cancer and potential targets for new drug design. Detailed descriptions of the pharmacology, mechanisms, and clinical usefulness of the different classes of anticancer agents are given. The concepts involved in determining the mechanism of action and the development of resistance, the determinants of drug responsiveness to chemotherapeutic agents, and a rationale for their clinical use in various kinds of cancer are particularly emphasized in this second edition.

The book is organized to aid the reader in understanding how the different anticancer drugs work and in categorizing them according to their mechanism of action. It is thus presented in four parts: (1) Principles of Cancer Chemotherapy, (2) The Anticancer Drugs, (3) Clinical Cancer Chemotherapy, and (4) New Directions in Cancer Chemotherapy. The order of discussion of the various classes of anticancer drugs in Part 2 is as follows: antimetabolites, covalent DNA binding drugs, inhibitors of chromatin function, and drugs affecting endocrine function. The final section has chapters describing anticancer drug development, biological treatments of cancer, and potential targets for new anticancer drugs. Each chapter in the book is followed by an extensive list of references. A complete subject index for the entire text is provided.

The second edition of *The Anticancer Drugs* is superbly organized and is written with remarkable clarity. It provides a concise, up-to-date review of drug substances currently employed in the treatment of cancer as well as insights into possible new directions for the future development of new anticancer drugs. This modestly priced book should be of interest to both established researchers and practitioners of cancer chemotherapy and to those just beginning in this field.

Staff

JM9504159

Research Proposals. A Guide to Success. Second Edition. By Thomas E. Ogden and Israel A. Goldberg. Raven Press, New York. 1995. xiii + 448 pp. 17.5 × 25 cm. ISBN 0-7818-0313-1. $49.00 (paperback).

This is a "how-to" book specifically aimed at teaching the preparation of effective National Institutes of Health (NIH) grant proposals. Since the NIH funds about 32% of all biomedical research conducted in the United States, the importance of well-prepared proposals is evident.

The book is aimed at both the beginning and experienced writer of research proposals; it is divided into three parts: (1) Beginning Grantsmanship, (2) Advanced Grantsmanship, and (3) Advise for New Scientists. It also contains extensive appendixes including the following: (A) Information Sources at the NIH, (B) Categorical Programs of the Institutes, (C) Sample Pink Sheets, (D) Sample Illustrations, (E) Human Subject Regulations, and (F) References and Grantsmanship. In all, the book is divided into 27 chapters dealing with all aspects of grant application. The RO1 grant applications which comprised over 81% of NIH grant awards in 1993 is the subject of one chapter. Another chapter is devoted to Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants that are designed to facilitate the transfer of newly developed technology from the university to industry and ultimately to the public.

This book is written with exceptional clarity; it should be of great assistance to both the novice and experienced research investigator. Its value is greatly enhanced by the experience of the authors, one of whom was an NIH senior administrator for 13 years.

Staff

JM9504161

Camptothecins: New Anticancer Agents. Edited by Milan Potmesil and Herbert Pinedo, CRC Press, Boca Raton, FL. 1995. 149 pp. 16 × 23 cm. ISBN 0-8493-4764-5. $129.95.

The structure of camptothecin, from the Chinese tree *Camptotheca acuminata*, was reported in 1966. Camptothecin has an unusual, rigid pentacyclic ring system containing a relatively labile α-hydroxy lactone moiety. Because of its potent antitumor activity, camptothecin was introduced into clinical trials in the early 1970s, but its lack of solubility and unacceptable toxicity precluded further development. In 1985, it was discovered that DNA topoisomerase I is the locus at which the antitumor activity of camptothecin is expressed. While several other classes of anticancer agents were believed to have DNA topoisomerase II as their molecular target, camptothecin was unique in its interaction with the type I enzyme. With a clear understanding of camptothecin's mechanism of action, interest was renewed in finding analogs with improved properties.

This volume, which was stimulated by the Fourth Conference on DNA Topoisomerases in Therapy held in New York in 1992, traces the development of improved camptothecin analogs. While there is a chapter on the medicinal chemistry of camptothecins, including considerable SAR, as well as chapters on the biochemistry and cellular effects of camptothecin and its analogs, most of the book is devoted to preclinical and clinical results on specific compounds. The final chapter updates the volume with information from a 1994 symposium organized by the National Cancer Institute and the European Organization for Research and Treatment of Cancer. Because of the book's narrow focus on a single class of antitumor agents, its emphasis on clinical studies, and its high cost, it will be of interest mainly to researchers actively engaged in the development of topoisomerase inhibitors as anticancer agents.

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JM950417T

The Biochemical Basis of Biology. 3. Manipulating DNA. Produced by E. J. Wood. The Biochemical Society. Published by Portland Press Ltd., Colchester, U.K. 1994. Videotape $96.00.

The Biochemical Basis of Biology is a series of videotapes produced by the Biochemical Society and intended for instruction of advanced and postgraduate students. These videos are excellent teaching tools that present biochemical facts and concepts in a dynamic manner, not possible via a text book. This third videotape of the series, *Manipulating DNA*, describes and illustrates the principles and methods of DNA research in molecular biology and genetic engineering. It is comprised of four related but independent sections: (1) cutting DNA, (2) electrophoresis of DNA, (3) amplifying DNA (the polymerase chain reaction), and (4) cloning DNA. The video is accompanied by a set of "Teachers' Notes" to assist the instructor and provide ideas for discussion.

Manipulating DNA is an excellent teaching supplement. It provides a clear description of DNA and the practical laboratory methods for its manipulation and utilization. This video will be of interest not only to students and teachers of molecular biology but also to other scientists seeking to learn more about DNA.

Staff

JM950419D

Antiepileptic Drugs. Fourth Edition. Edited by René H. Levy, Richard H. Mattson, and Brian S. Meldrum. Raven Press, New York. 1995. xxv + 1120 pp. 22 × 28.5 cm. ISBN 0-7817-0246-1. $179.00.

The fourth edition of *Antiepileptic Drugs* presents the most recent advances in the chemotherapy of epilepsies. The book is comprised of 99 chapters, an appendix, and a thorough subject index. Following the introduction are 18 chapters that constitute the first section "General Principles". Included in this section is a chapter on absorption, distribution, and elimination as well as ones on neurophysiology, advances in clinical trial design, new formulations, compliance, surgical aspects of

therapy, teratogenicity, and the role of combined therapy. The next 47 chapters detail the older antiepileptic drugs, namely, phenytoin, other hydantoins, phenobarbital, other barbituates, primidone, carbamazepine, valproic acid, ethosuximide, other succinimides, oxazolidinediones, and benzodiazepines. Following this are 20 chapters devoted to "New Antiepileptic Drugs", i.e., felbamate, gabapentin, lamotrigine, and vigabatrin. For both the older and newer antiepileptic agents, detailed descriptions of the understanding of their mechanism of action, chemistry and biotransformation, absorption, distribution and excretion, interactions with other drugs, clinical use, and toxicity are presented. The final two sections of the book describe "Other Antiepileptic Drugs" (ACTH, bromides, chlormethiazole, paraldehyde, acetazolamide, oxcarbazepine, progabide, and zonisamide) and "Potential Antiepileptic Drugs" (losigamone, remacemide hydrochloride, stiripentol, tiagabine, and topiramate). Considering that five of the seven drugs listed as "potential antiepileptic drugs" in the third edition of this book have since been marketed, the latter section of this fourth edition may be particularly important.

Antiepileptic Drugs is the most comprehensive description of these agents currently available. It contains a wealth of information that will be of value to medicinal chemists and all other researchers in this field as well as to all practitioners concerned with the treatment of epilepsy.

Staff

JM950420C

Books of Interest

Methods in Molecular Biology. Volume 42. Elisa. Theory and Practice. By John R. Crowther. The Humana Press, Totowa, NJ. 1995. xi + 223 pp. 16 × 23 cm. ISBN 0-89603-279-5. $59.50.

Methods in Molecular Biology. Volume 43. In Vitro Toxicity Testing Protocols. Edited by Shelia O'Hare and Chris K. Atterwill. The Humana Press, Totowa, NJ. 1995. xiv + 332 pp. 17 × 22.5 cm. ISBN 0-89603-282-5. $69.50.

Transition Metals in Supramolecular Chemistry. Volume 448. Edited by Luigi Fabbrizzi and Antonio Poggi. Kluwer Academic Publishers Group. The Netherlands. 1994. xxii + 435 pp. 16.5 × 24.5 cm. ISBN 0-7923-3196-6. $195.00.

Regulatory Toxicology. Edited by Christopher P. Chengelis, Joseph F. Holson, and Shayne C. Gad. Raven Press, New York. 1995. ix + 239 pp. 16 × 24 cm. ISBN 0-7817-0191-0. $95.00.

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