

Book Review

**Drug Discovery Handbook Edited by Shayne Cox Gad. Wiley-Interscience, Hoboken, NJ. 2005. xix + 1471 pp. 16 x 24 cm. ISBN 0471213845. \$160.00.**

Jan W. F. Wasley

*J. Med. Chem.*, **2005**, 48 (23), 7500-7500 • DOI: 10.1021/jm0582672 • Publication Date (Web): 14 October 2005

Downloaded from <http://pubs.acs.org> on March 29, 2009

**More About This Article**

---

Additional resources and features associated with this article are available within the HTML version:

- Supporting Information
- Access to high resolution figures
- Links to articles and content related to this article
- Copyright permission to reproduce figures and/or text from this article

[View the Full Text HTML](#)



**ACS Publications**  
High quality. High impact.

## Book Reviews

**Drug Discovery Handbook.** Edited by Shayne Cox Gad. Wiley-Interscience, Hoboken, NJ. 2005. xix + 1471 pp. 16 × 24 cm. ISBN 0471213845. \$160.00.

In many ways drug discovery and development have changed dramatically in the past 25 years, yet in other ways it has remained remarkably constant in that we still endeavor to find new drugs using a process heavily dependent on medicinal chemistry and the expertise of our biochemical and biological colleagues. However, the range of technologies that can now be brought to bear on discovering and developing new drugs has mushroomed. Consequently, it is now unrealistic for one author to be sufficiently expert in all of the relevant disciplines to write a comprehensive drug discovery handbook. This *Drug Discovery Handbook* is a compilation of contributions of many individual experts who have authored chapters in their particular areas, covering a wide variety of topics germane to drug discovery. It is a very commendable effort. The contributors are primarily from academia, but both government institutions and pharmaceutical research companies, large and small, are represented.

The editor has endeavored to provide chapters on a wide range of topics that in general are well written and informative, and he has introduced many emerging areas that have significant impact in their application to drug discovery. In many ways, the various revolutions in biotechnology of the past 30 years have largely given way to more evolutionary changes, and many of the chapters in this book reflect these changes. Perhaps this book would have been even better if the chapters had been arranged somewhat differently and if they had followed the logical progression in the process of drug discovery and development. However, one of the pluses of the book is that any individual chapter may be read independently of the others, and readers may elect to peruse the chapters according to the “process” if they so choose.

The book is divided into 29 chapters. In general, the chapters follow similar formats in that they describe the background of the topic and provide materials and methods where appropriate. This is followed by specific examples and speculation on future directions. Chapter 1 provides an excellent introduction to the various strategies employed in drug discovery today, together with pertinent statistics and challenges that the area faces in 2005.

Chapter 2 is a comprehensive treatise on natural products with its focus on using them as platforms for drug discovery, and it is rightly concluded that they are valuable resources that should be considered in any integrated drug discovery program, while clearly describing the advantages and challenges of using natural products in drug discovery.

Chapters 3–17 focus primarily on technologies and their applications to drug discovery, and they offer a comprehensive menu that may be selected to aid in the hunt for new drugs. These technologies include such topics as tools for virtual screening, systems biology, high-throughput flow cytometry, combination of NMR

with structural features for computational models for biological activity, X-ray crystallography, and high-throughput screening and its evolution. Chapter 17, dealing with various approaches to prodrugs, is particularly instructive, and it provides many useful examples. One emerging area that does not appear in the book is the use of biomarkers as surrogate end points both in the diagnosis of disease and in clinical trials of new drugs and their extension to applications in pre-clinical drug discovery. The very useful Chapter 8 describing the age of regulation and its evolution and impact on drug discovery seems misplaced; it could have followed Chapter 1 to advantage.

Chapters 18–29 in general focus more on biological systems; there is an excellent chapter on GABA and glutamate ligands and chapters on strategies in the design of antiviral drugs, protein kinase inhibitors, and their potential applications. Chapter 21 is a very comprehensive description of combinatorial chemistry approaches using solid-phase chemistry, albeit neglecting to include the complementary solution-based approaches. The chapter belongs more in the technologies section.

However, my criticisms are minor, and overall, the book provides in one volume most of the currently used and emerging technologies available to discoverers. It presents a wealth of information on topics that are difficult to find elsewhere. The individual chapters are well organized, and they provide ample reference material. The enthusiasm of the individual contributors for their own particular areas of expertise is evident. The book is a worthwhile reference for scientists interested in new developments and techniques. It represents a very useful handbook.

Jan W. F. Wasley  
Simpharma LLC  
1 Stone Fence Lane  
Guilford, Connecticut 06437

JM0582672

10.1021/jm0582672

**Annual Review of Biochemistry. Volume 74.** Edited by Roger D. Kornberg, Christian R. H. Raetz, James E. Rothman, and Jeremy W. Thorner. Annual Reviews, Palo Alto, CA. 2005. x + 1010 pp. 15 × 25 cm. ISBN 0-8243-0874-3. \$88.00.

This book is the 74th volume of this review series. A variety of timely topics is covered in 28 reviews written by experts working in the respective fields. The first review is an interesting account of Paul Zamecnik's endeavors entitled “From Protein Synthesis to Genetic Insertion”. The remaining 27 reviews cover a broad range of individual topics in biochemistry, with a number devoted to gene expression and about half devoted to protein structure and function within specific systems.

Individual reviews will be of great value to medicinal chemists working in fields directly related to the topics

covered. Specific reviews likely to be of most direct interest to medicinal chemists in select fields include the following titles: (1) Membrane-Associated Guanylate Kinases Regulate Adhesion and Plasticity at Cell Junctions; (2) NOD-LRR Proteins: Role in Host–Microbial Interactions and Inflammatory Disease; (3) Regulation of Protein Function by Glycosaminoglycans, As Exemplified by Chemokines; (4) Structure and Function of Fatty Acid Amide Hydrolase; (5) Structure and Physiologic Function of the Low-Density Lipoprotein Receptor; (6) Antibiotics Targeting Ribosomes: Resistance, Selectivity, Synergism, and Cellular Regulation; (7) Gene Therapy: Twenty-First Century Medicine; (8) The Structural Biology of Type II Fatty Acid Biosynthesis.

All reviews are well written and informative. The subject index is thorough. Citations for most of the 28 reviews are extensive and up to date. An excellent feature of this compilation of reviews is a complete author index for all citations. This book contains a short but useful list of reviews in other annual review publications that are related to topics in this volume. The present volume is a welcome addition to this long-standing series, providing summaries of advances in the biochemical sciences. It is notable that this book, as well as all Annual Review of Biochemistry volumes, is located online at <http://biochem.annualreviews.org>.

**Robert J. Kerns**

*Division of Medicinal and Natural Products Chemistry  
College of Pharmacy  
University of Iowa  
Iowa City, Iowa 52242*

JM058268U

10.1021/jm058268u

### **Frontiers in Natural Products Chemistry. Volume**

**1.** Edited by Atta-ur-Rahman, M. Iqbal Choudhary, and Khalid M. Khan. Bentham Science Publishers, Ltd., Hilversum, The Netherlands. 2005. xiii + 234 pp. 16.5 × 25 cm. ISBN 90-77527-044. \$130.00.

The 24 chapters in this short volume are based on presentations made at the 9th International Symposium on Natural Products, held in Karachi, Pakistan, January 10–13, 2004. A broad array of natural products of animal, microbial, and plant origin is featured. About

a third of the chapters refer to the rational stereoselective synthesis of specific target compound classes, including agelorins, bisindole alkaloids, cephalostatins, oligostilbenoid dimers, and taxoid–colchicinoid conjugates, in addition to more general methodological reviews. Another major grouping of chapters concerns the isolation and structural characterization of metabolites from organisms, such as alkylphenols from cashew nut oil, bacterial siderophores that chelate Fe<sup>3+</sup>, isoquinoline and quinoline alkaloids from *Zanthoxylum* species, mistletoe lectins, and polyacetylenes. In addition, there are chapters on contemporary approaches to natural product isolation, microbial transformation, molecular cloning, and structure elucidation.

The quality and depth of the chapters in this hard-backed volume are quite variable. Many of the chapters, especially those based on plenary lectures by leading natural products scientists, are quite illuminating and meticulously prepared. Altogether, 77 coauthors representing 18 countries are included in the volume, and it is refreshing to see contributions from so many Asian scientists. The references are up-to-date and there is a subject index that is generally free from error. However, there are some production flaws in the volume. For example, not all of the chapter running heads comprise concise, meaningful phrases and in some cases only the first two or three words of the corresponding chapter title have been selected for this purpose. Several of the figures are missing from the chapter “Researches on the Technology and Bioactive Properties of Phenolic Lipids”. Some of the shorter chapters from authors whose first language is not English would have benefited from more effective copy editing.

Although the selection of topics covered is somewhat eclectic, the appearance of a volume like this is to be welcomed, and readers of the *Journal of Medicinal Chemistry* will find much of interest. Overall, owing to its topical and far-reaching technical content, Volume 1 of *Frontiers in Natural Products Chemistry* is highly recommended for institutional purchase.

**A. Douglas Kinghorn**

*Division of Medicinal Chemistry and Pharmacognosy  
College of Pharmacy  
The Ohio State University  
Columbus, Ohio 43210*

JM058269M

10.1021/jm058269m