Book Reviews

The Practice of Medicinal Chemistry. Third Edition. Edited by Camille G. Wermuth. Academic Press/Elsevier, Amsterdam, The Netherlands. 2008. xxvi + 942 pp. 22 × 28.5 cm. ISBN 978-0-12-374194-3. $175.00.

The third edition of this book, useful to seasoned medicinal chemists as well as to chemists entering the academic or industrial laboratories, provides a hands-on overview of the drug discovery process. This edition differs from the previous two editions by having been updated to reflect developments in the past 5 years, and it includes 11 new chapters. The book lists 7 section editors and 63 contributors, approximately equally divided between industrial firms and academic/research institutions from France (17), the U.S. (17), Germany (8), Switzerland (8), the U.K. (7), Belgium (2), Japan (2), and Austria (1). Welcome features in this edition are the use of full color diagrams and charts and the inclusion, especially in Chapter 1 (A History of Drug Discovery), of many photographs of scientists who have made significant contributions to medicinal chemistry.

I found this book to be unique, well organized, and overall a useful addition to the medicinal chemistry literature. Having favorably reviewed the first edition [*Pharm. News* **1997**, *4* (6)], I still highly recommend this third edition to all chemists who are involved in the drug discovery process.

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The Chemistry of Fungi. By James R. Hanson. Royal Society of Chemistry, Cambridge, U.K. 2008. xi + 221 pp. 16 × 24 cm. ISBN 9780854041367. £60.00.

Fungi, nonphotosynthetic organisms, have an important place in the natural world. They obtain their nutrients from the degradation of organic material and then transform the assimilated products into a wide array of secondary metabolites. The study of isolation, structure elucidation, and biosynthesis by traditional methods and more recently by new chromatographic and spectroscopic techniques has considerably advanced our knowledge of medicinal, agricultural, and microbial chemistry, biochemistry, and treatment of infectious diseases. This concise book is an introduction to the chemistry of fungal constituents. Its aim is to describe some aspects of the diverse chemistry of fungal metabolites: their biosynthesis and their biological activity. The book begins with a historical introduction, followed by a description of the general chemical features that contribute to the growth of fungi. There are thousands of fungal metabolites whose structures are known. Because these are compiled in databases, this book describes only some of the more important ones that are classified according to their biosynthetic origin. The second chapter begins with a general outline of some relevant biosynthetic pathways, followed by presentation of a detailed discussion of some specific metabolites. Compounds that are fungal pigments and those that are distinctive metabolites of the more well-known basidomycetes are treated separately. Metabolites derived from amino acids (penicillins, cephalosporins) are discussed, as are fungal polyketides such as griseofulvin and statins. A chapter on fungi as reagents provides a short discussion of ergot alkaloids as well as xenobiotic transformation, hydrolysis, and hydroxylation reactions. Among other chapters in the book are ones discussing formation of terpenoids from fungal metabolites, metabolites derived from the citric acid cycle, fungal pigments and odoriferous compounds, fungal diseases of plants, and mycotoxins. A chapter contains discussions of toxic ergot constituents and of therapeutically useful ergot alkaloid derivatives.

Further reading references and a general bibliography for each chapter are provided in a separate chapter. A two-page epilogue and a five-page glossary are also presented.

This will be a useful book for chemists contemplating a career in microbial chemistry as well as for medicinal chemists. The cost of £60 for a hardcover book of 221 pages may seem high to some.

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Medicinal Chemistry. By V. K. Ahluwalia and Madhu Chopra. Ane Books India, New Delhi, India. 2008. xxii + 340 pp. 19 × 25 cm. ISBN 1420065807. $99.95.

In the preface to Medicinal Chemistry, the authors write that "the book intents [sic] the reader, whether a student or scientist interested in medicinal chemistry, will be able to learn a rational physical organic chemical approach to drug design and development." As a professor of medicinal chemistry and drug metabolism, I am quite interested in this intended goal. The text contains one of the most organized, detailed and clear tables of contents that I have ever seen. It provides the reader with high expectations for clarity and coverage. Unfortunately, the text is riddled with editorial errors that have no place in a book meant for nonexperts: figures have mistakes in chemical structures and pathways, equations have missing variables, and grammar and spelling need much attention.

The first five chapters lay out foundation concepts needed to understand the medicinal chemistry of the therapeutic agents covered in the second portion of the book. These foundation chapters include all the topics that one expects to see. Chapter 1 covers discovery of lead compound and lead modification by pharmacophore identification and structure modification. Chapter 2, Receptors and Drug Action; Chapter 3, Enzymes as Receptors; Chapter 4, Drug Metabolism; and Chapter 5 addresses a short treatment of Natural Products and Drug Development. Disregarding the significant editorial mistakes, this foundation content is presented in a very clear manner and should be approachable by beginners and experts in the field. However, developments in the area since 1990 are only occasionally mentioned.

The remaining 14 chapters are organized by drug class, including anticoagulants, cardiovascular drugs, antimalarials, analgesics, antibiotics, antibacterials, anticonvulsants, cancer chemotherapy, diuretics, uricosuric agents, drugs for AIDS and related disorders, antiamebic agents, antiseptics and disinfectants, and anthelmintics. The mechanism of action and pharmacologic explanations are quite clear and concise, and these chapters consistently cover the traditional drugs and drug classes. However, they suffer from lack of content from approximately 1990 to the present time.

Chapters are referenced by "suggested reading" rather than by specific citations (with Chapters 4, 5, 7, and 11 lacking any references). As an introductory text, general readings may suffice. However, those listed are in serious need of an update; most were published in the 1970s and 1980s. Only Chapters 1−3 refer to readings published after 1990.

There is much that is good about this text: clear concise explanations of fundamental concepts and mechanism of actions of certain drug classes. However, nonexperts will be unable to distinguish the incorrect from the correct as regard the editorial shortcomings/errors mentioned above. And in my view, all readers will suffer from lack of coverage of developments since the early 1990s.

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Books of Interest

Calixarenes. An Introduction. By C. David Gutsche. Royal Society of Chemistry, Cambridge, U.K. 2008. xiii + 276 pp. 16 × 24.5 cm. ISBN 9780854042586. £59.95.

Six-Membered Transition States in Organic Synthesis. By Jaemoon Yang. Wiley-Interscience, Hoboken, NJ. 2008. x + 210 pp. 15.5 × 24.5 cm. ISBN 0470178833. $125.00.

Biomarker Methods in Drug Discovery and Development. Edited by Feng Wang. Humana Press, Totowa, NJ. 2008. xviii + 396 pp. 16 × 24 cm. ISBN 978-1-934-11-523-7. $129.00.

Biosimulation in Drug Development. Edited by Martin Bertau, Erik Mosekilde, and Hans V. Westerhoff. Wiley-VCH, Weinheim, Germany. 2008. xxviii + 512 pp. 17 × 24.5 cm. ISBN 978-3-527-31699-1. $215.00.

Structure and Reactivity in Organic Chemistry. By Mark G. Moloney. Blackwell Publishing, Ltd., Oxford, U.K. 2008. xi + 306 pp. 17 × 24.5 cm. ISBN 1405114517 (Paperback). $55.00.

Galectins. Edited by Anatole A. Klyosov, Zbigniew J. Witczak, and David Platt. Wiley, Hoboken, NJ. 2008. xi + 279 pp. 16 × 24 cm. ISBN 0470373180. $110.00.

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