Book Reviews

The Practice of Medicinal Chemistry. Edited by Camille Georges Wermuth. Academic Press, London. 2003. xv + 768 pp. 22 × 28 cm. ISBN 0-12-744481-5. $179.95.

This book is the second edition of a thorough overview of medicinal chemistry as it is currently practiced. As implied by the title, it is a practical guide with many examples from the recent literature. It is comprised of 43 chapters written by experts in the areas of lead identification, lead optimization, computational chemistry, crystallography, pharmacokinetics, and formulations. As such, it serves as an excellent introduction to those just starting a career in medicinal chemistry. The section covering the primary exploration of structure−activity relationships contains many examples of isosteric replacements and conformational restriction strategies. Because these chapters are organized as reviews, they will serve as a good resource for those already working as medicinal chemists. Chapters on pharmacophore mapping, QSAR, and ADME will also serve as excellent resources. The chapter on natural products provides an interesting analysis of marketed drugs and compounds in the clinic that supports their use as an important source of leads. In summary, this is a book that should be included in the libraries of companies and institutions where medicinal chemistry is practiced.

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Fundamentals of Medicinal Chemistry. By Gareth Thomas. John Wiley and Sons, Ltd., West Sussex, U.K.. 2003. xv + 285 pp. 19 × 24.5 cm. ISBN 0-4708-4307-1. $30.00.

Fundamentals of Medicinal Chemistry is a textbook unlike other works aimed at students and dedicated to medicinal chemistry. The book dedicates little space to a description of drugs by therapeutic class, and there is no discussion of traditional structure−activity correlations for various chemical structural classes. Instead, the book takes a refreshing view of medicinal chemistry as a multidisciplinary science wherein researchers in the basic pharmaceutical sciences work together to discover new drugs by a rational and iterative process. It is written primarily for students who have completed basic organic chemistry and assumes no knowledge of biochemistry or biology. Therefore, the first chapter provides a concise primer covering biological molecules (peptides, carbohydrates, lipids, and nucleic acids) in only 34 pages. Chapter 2 provides a similarly concise description of drugs and drug discovery, followed by a description of concepts related to absorption, distribution, metabolism, and excretion (ADME). Chapter 3 details various aspects of stereochemistry and solubility important to the drug discovery process. Chapter 4 deals with the SAR and QSAR approaches to drug design, and Chapter 5 deals with computer-aided drug design. Chapter 6 provides an excellent overview of combinatorial chemistry. Chapter 7 is dedicated to examples of drug design strategies with the intent of explaining concepts such as enzyme inhibition, receptor pharmacology, intercalators, antisense drugs and antivirals, among others. More advanced concepts in pharmacokinetics (Chapter 8) and drug metabolism (Chapter 9) are also described. The final two chapters of the book discuss lead discovery and analogue synthesis (Chapter 10) and the drug development process (Chapter 11).

A major strength of this book is the emphasis it places on concepts in medicinal chemistry, thus facilitating student learning. Each chapter ends with a series of questions, and answers to the questions are provided in the end section of the book, following the appendices. These questions are appropriate for students at the undergraduate to graduate levels. There are 12 appendices dealing with a variety of topics not covered in the book (for example, sickle cell anemia and regression analysis).

One weakness of this book is the lack of references to the facts presented in the text. However, the book is not intended as a reference text, and the author does provide a modest list of sources for further reading. Overall, Fundamentals of Medicinal Chemistry provides students with a quick and concise introduction to principles normally introduced in schools of pharmacy. As such, it would be of great value to beginning graduate students in medicinal chemistry who come from a pure chemistry background. It would not be suitable as a textbook for a traditional medicinal chemistry course taught to Pharm.D. students, although it would be a nice text to maintain on reserve for interested students. Because of its overview of medicinal chemistry as an interdisciplinary science and its excellent description of the drug discovery process, it should be included in any practicing chemist's personal library. Thus, a reader with a minimal background can quickly gain an appreciation for the process of drug design, discovery, and development.

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