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BOOK REVIEW

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Book Review of Prodrugs and Targeted Delivery: Towards Better ADME Properties

Prodrugs and Targeted Delivery: Towards Better ADME Properties. Edited by Jarkko Rautio. Wiley-VCH, Weinheim, Germany. 2011. xxiv + 496 pp. 17.5 × 25 cm. ISBN 978-3-527-32603-7. $195.00

This book covers a broad range of prodrug strategies that will be of interest to scientists involved in drug discovery who are looking to understand the fundamentals of prodrugs or who are seeking updates on the status of the prodrug field. It is an addition to the book series entitled *Methods and Principles in Medicinal Chemistry*, and it is divided into four parts.

Part 1 is composed of three chapters. The first chapter begins with a brief introduction of various prodrug tactics employed to overcome ADME barriers to a drug's usefulness. It also illustrates a series of prodrugs that were launched worldwide during 2004−2008. The second chapter presents an overview on medicinal chemistry where various functional groups of parent molecules are utilized to construct prodrug molecules. The third chapter describes patent laws and case studies with an emphasis on prodrug patentability, which is informative to those working in the pharmaceutical industry where the protection of intellectual property is essential. Part 2 (Chapters 4−12) contains a number of prodrug strategies: increasing lipophilicity for oral drug delivery, modulating solubility for oral and iv delivery, targeting transporters for oral drug delivery, topical and transdermal delivery, ocular delivery, reducing presystemic drug metabolism, site-selective drug delivery, central nerve system delivery, and directed enzyme prodrug therapy (for cancer therapy). Each chapter focuses on a specific prodrug strategy and describes ample prodrug examples and references, which makes this text useful as a resource on the topic.

Part 3 (Chapters 13 and 14) presents codrug and soft drug strategies. The two chapters are very informative and allow easy comprehension of the benefits and limitations of these less-commonly employed, yet effective, prodrug strategies. Part 4 (Chapters 15 and 16) presents preclinical and clinical consideration for prodrugs. Chapter 15 deals primarily with pharmacokinetics of prodrugs and factors affecting oral absorption (e.g., intestinal active transporters and metabolic enzymes). Chapter 16 illustrates several prodrug examples where genetic variations of prodrug activation enzymes affect clinical outcomes. The last two chapters highlight potentially complex issues associated with interspecies and interindividual differences in metabolic activation of prodrugs.

The book captures all the important aspects of prodrugs. It is well organized in that each chapter presents a specific topic with very little duplication of contents between chapters. However, the subject index section is rather poorly constructed. Institution of a glossary can be useful if the term is not described in the text. Given the fact that prodrugs are now increasingly integrated into early drug discovery, this type of book would be a valuable addition to the library of any drug discovery institution.

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