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BOOK REVIEW

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Book Review of Signposts to Chiral Drugs: Organic Synthesis in Action

Signposts to Chiral Drugs: Organic Synthesis in Action. By Vitomir Šunjić (University of Zagreb, Croatia) and Michael J. Parnham (University Hospital for Infectious Diseases "Dr. Fran Mihaljevic", Zagreb, Croatia). Springer Basel AG: Basel. 2011. xx + 232 pp. $189. ISBN 978-3-0348-0124-9.

In this timely book, Šunjić and Parnham provide an exciting selection of major achievements in drug development and unfold 15 intriguing success stories of aliskiren, vancomycin, paclitaxel, menthol, efavirenz, and others from the perspective of a medicinal chemist.

General aspects of the process of drug discovery and development and the role that synthetic chemistry plays are briefly described in the first chapter. In each of the following chapters, the reader finds a short synopsis of the biological target of the drug or class of drugs, the therapeutic profile, and synthetic highlights. Then, background information about the disease is provided, and the mode of action of drug leads and important SAR principles are discussed. Once the structure of the drug target(s) and the corresponding synthetic challenges are clearly defined, the serendipity, innovation, and imagination of synthetic and process chemists who paved the way to these pharmaceutical leads or clinical candidates are highlighted and tied into relatively short but fascinating stories. Drug-target interactions and synthetic strategies, etc., are illustrated with many figures, tables, and schemes, albeit some could have been reprinted with higher resolution. Mechanistic and general aspects of some of the most important methods or technologies used, e.g., asymmetric organocatalysis, enantioselective hydrogenation, asymmetric dihydroxylation, kinetic resolution, crystallization-induced asymmetric transformation, Suzuki coupling, multicomponent reactions, click chemistry, ring closure metathesis, and simulated moving-bed chromatography, are explained in some detail and encourage the reader to further reading. However, the references provided at the end of each chapter are not intended to fully cover all the medicinal and chemical facets touched on, and the reader is well advised to conduct a more thorough literature search to obtain a comprehensive understanding of the latest state-of-the-art and future directions.

This book will be most appealing to undergraduate and graduate students with an interest in synthesis and stereochemistry, but experienced academic and industrial chemists will be equally intrigued by the remarkable synthetic achievements highlighted in the selected stories of drug development. Although *Signposts to Chiral Drugs* is probably too eclectic to serve as a single textbook for a course on organic synthesis or retrosynthesis, it should be considered an instructive teaching supplement that underscores the general significance and impact of creative synthetic chemistry and stimulates further discussion in the classroom.

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