Book Reviews

Frontiers in Drug Design and Discovery. Volume 1. . Edited by Gary W. Caldwell, Atta-ur-Rahman, and Barry A. Springer. Bentham Science Publishers Ltd., Hilversum, The Netherlands. 2005. vi + 360 pp. 18 × 25 cm. ISBN 90-77527-03-06. $130.00.

This book is apparently the first volume of a new series from the publisher; the second volume of the older series "Frontiers in Medicinal Chemistry" was previously reviewed in this journal (Wolff, M. E. *J. Med. Chem.* **2005**, *48*, 6166−6167). It represents yet another addition to the existing four major comprehensive multivolume medicinal chemistry review compendia (*Annual Reports in Medicinal Chemistry*, "*Burger*", *Progress in Medicinal Chemistry, and Comprehensive Medicinal Chemistry*) and to the more than a half-dozen books on drug design that have appeared in the past few years.

The present compilation, as described in a prefatory editorial, "presents some of the most up-to-date and exciting new technological approaches to speeding up the drug discovery process. Only a concerted effort to apply these new techniques to the discovery and development of new therapeutic drugs will succeed in modernizing the pharmaceutical industry." Whether these words accurately reflect the situation, or even justify still another series with this focus is open to question. The paucity of newly approved new chemical entities (NCEs) continues, notwithstanding the availability of most of these "new technological advances" for some time. Only twelve NCEs have been approved in the U.S. for the first 10 months of 2005, and 6 of the top 10 most-prescribed medicines are now generic drugs. Thus, it seems more likely, as George Milne argued in *Annual Reports in Medicinal Chemistry* (**2003**, *38*, 383), "that we also need to move away from the seduction of the in vitro assay with highly purified proteins, which produces very clean SAR, to phenotypic assays reminiscent of screening in the spontaneously hypertensive rat of 50 years ago—high in content but lower in intrinsic precision exactly because they integrate multiple steps." Likewise, Patrick Englebienne remarks in the present volume (p 69) "[al]though HTS allows [us] to rapidly identify new drug candidates, the technique does not address the possible applicability of the hits to a biological system." Even so, 5 of the 14 reviews in this book consider various high-throughput screening topics and targets: general considerations, kinetic features, antibacterial agents, phage display libraries, and G-protein-coupled receptors.

The book comprises 14 chapters written by 32 authors from academic and industrial laboratories in the U.S., EU, Australia, Japan, and Mexico. The determination and prediction of adsorption, distribution, metabolism, excretion, and toxicity (ADMET) properties is the subject of two essays, including one on urinalysis as a toxicity screen. An excellent review of work described in more than 200 references on "hyphenated" spectroscopic methods ranging from LC−MS to (HP)LC−UV−NMR−MS−FTIR, as applied to the deconvolution of complex mixtures obtained from natural products, is presented by Urban and Separovic. I also enjoyed the discussion of small-molecule drug targeting of RNA by Zaman, who points out the underappreciated importance of RNA as targets for drug action, particularly in view of the proof-of-concept provided by the aminoglycoside antibiotics. Of less appeal to the medicinal chemist may be a consideration of structural biology that is wholly devoid of structures, as well as highly specialized chapters on nanotubes, automated literature searches, DNA hybridization, and gene synthesis.

This book is well written, and it has a useful 14-page index. It may be appropriate for acquisition by large libraries.

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Named Organic Reactions. Second Edition. By Thomas Laue and Andreas Plagens. Wiley & Sons, Ltd., Chichester, England. 2005. x + 310 pp. 15 × 23 cm. ISBN 0-470-01041. $55.00.

This book consists of alphabetized descriptions of 117 named reactions commonly employed in modern organic synthesis, from the acyloin condensation to the Wurz reaction. There are actually more than the 117 named reactions covered, since the sections include named variants and improvements such as the Huang−Minlon modification of the Wolff−Kishner reduction. For each reaction the authors discuss the mechanism, side reactions, product distributions, and yields. Several examples of application of each reaction are given along with references to the primary literature and review articles. The book was originally published in German, and the translated text is very well written and easily read. The index is adequate and includes names of the compounds synthesized, but it could have been improved by listing the named reactions under general descriptions such as oxidations, reductions, or types of functional groups generated. Overall, the clarity of the text and the extensive coverage would make this an excellent book for a graduate student or upper level chemistry major. Practicing organic chemists a few years out of school might also find it a worthy addition to their personal libraries.

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