Drug Discovery and Development, 2 Volume Set; edited by M. S. Chorghade, John Wiley & Sons: New York, **2007**, hardcover, 904 pp., £ 100 / € 144, ISBN 978-0-471-39846-2

The two-volume set *Drug Discovery and Development*, edited by Mukund Chorghade, claims to be the first comprehensive guide to this area, with the first volume covering Discovery and the second, Development.

Volume 1, Drug Discovery, starts off well, with a good introduction titled: 'From Patent to Prescription'. It continues with several strong articles, including: a long discussion on 'Medicinal Chemistry in the New Millenium', which includes potential future developments in the field; an excellent overview of 'Contemporary Drug Discovery'; and a solid contribution on combinatorial chemistry, which is complimented by a more personal overview on 'Parallel Solution Phase Synthesis'. The section on the 'Timing of Analog Research' is disappointing, consisting mainly of very brief commentaries on analogs of various drug families, without a great deal of discussion on the relative merits and demerits of different timing strategies. However, things quickly pick up again with an excellent discussion of 'Possible Alternatives to High-Throughput Screening', which includes a fascinating discussion on the SOSA (Selective Optimization of Side Activities) approach to drug discovery – an interesting, potentially efficient strategy in which the weaker side interactions of known active drugs are developed at the expense of the original therapeutic interaction. Subsequent chapters cover: the increasing importance of proteomics and integrated systems biology in the drug discovery process; drug metabolism databases, highlighting the need to develop such tools further to allow prediction of drug metabolic profiles in three dimensions; use of nuclear imaging to accelerate activities in target validation, preclinical and clinical studies (although the high cost limits widespread use). The volume also includes a handful of generally well presented case studies, covering the discovery of Tagamet, Remifentanil, Nevirapine and a personal history on the discovery of potent nonpeptide vasopressin receptor antagonists. The final two chapters seem somewhat out of place and discuss the niche area of polymeric sequestrants as non-adsorbed human therapeutics, and botanical immunomodulators and chemoprotectants in cancer therapy.

After the largely successful first volume, the second volume is a disappointment. It has a rushed feel to it, lacks cohesion and jumps about from topic to topic, covering both development and discovery, without a clear logic to the proceedings. Some of the better discovery articles (which should really have been included in Volume 1) include: a solid contribution from Steven Ley and colleagues, covering supported reagents, and catch-and-release methodology, culminating in his elegant and efficient synthesis of epothilone A; a chapter covering library quality metrics (which would have been better placed next to the contribution on combinatorial chemistry in Volume 1); and two more discovery-themed case studies on insulin sensitizers and antiepileptic agents. There are also a number of weaker discovery contributions, including: the opening chapter on bioactive molecules in medicinal plants; a section on carbohydrates, which gives no real discussion of current and future carbohydrate-based drugs, but instead gives a technically detailed review of the authors' work on C-glycosides; and a chapter on enantioselective synthesis of propargylic alcohols which includes numerous experimental procedures and seems out of place in either volume. Drug Development is discussed, and there are a number of worthwhile contributions including: discussion of industrially viable chiral technologies (including bioresolutions and metal-catalyzed asymmetric transformations); the challenges of process development and scale-up of generic APIs; a short but informative chapter on the increasing importance of polymorphs and salts in the pharmaceutical industry; the role of outsourcing in drug manufacture; the impact of emissions and effluent regulations on process chemistry (although the detailed example given is quite old); the use of statistical design of experiments (DOE) to optimize a crystallization and to overcome micromixing issues on scale-up (although a synthetic example, simultaneously varying multiple factors to determine critical parameters or optimal reaction conditions, would have been a useful addition). The title of the penultimate chapter 'Building Contract Research Businesses Based on Integration of Basic and Applied Research' is misleading as it doesn't really discuss building a CRO business, but is more a collection of projects completed in Indian research institutes by the authors. Disappointingly, in the section on solving 'real-world problems,' the solutions include use of a range of highly toxic or dangerous reagents to make drug targets (often late in the synthesis). Some of the work is certainly very interesting, but is not representative of developing a drug on scale. The volume ends on a high with a short but interesting section on the principles and practice of clinical drug development. Overall, the volume lacks a good introduction to process development, outlining the high-level challenges to transforming a discovery route into a commercial manufacturing process, and the various strategies involved in obtaining multi-kilo amounts of drug substance. Replacing some of the discovery case studies in Volume 2 with a couple of the many excellent examples of drug process development and scale-up would have also been beneficial.

In summary, taken together, the books fall short of the bold back-cover claim highlighted at the start of this article. That said, the first volume is good reading, and contains several excellent contributions, giving plenty of value. Unfortunately, the second volume was let down by a lack of focus on drug development, although a number of solid contributions were included.

Steven J. Collier, Singapore

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