Organic Process Research & Development

Book Review

pubs.acs.org/OPRD

Pharmaceutical Process Development: Current Chemical and Engineering Challenges

Pharmaceutical Process Development: Current Chemical and Engineering Challenges edited by A. John Blacker and Michael T. Williams. Royal Sociey of Chemistry: Cambridge, UK. 2011. pp. Price £121.99. ISBN 978-1-84973-146-1.

This book comprises 15 chapters entitled "Introduction", "Process Research and Development in the Pharmaceutical Industry: Origins, Evolution and Progress", "Active Pharmaceutical Ingredients: Structure and Impact on Synthesis", "Rapid Early Development of Potential Drug Candidates", "Route Design and Selection", "The Importance of Green Chemistry in Process Research & Development", "Kinetic Approaches for Faster and Efficient Process Development", "The Design of Safe Chemical Reactions: It's No Accident", "Physicochemical Data Requirements for the Design of Fine Chemical Processes: Acquisition and Application", "Liquid–Liquid Extraction for Process Research and Development in the Pharmaceutical Industry", "Development Enabling Technologies", "The Analytical Interface and the Impact on Pharmaceutical Process Development", "Materials Science: Solid Form Design and Crystallisation Process Development", "Technology Transfer of an Active Pharmaceutical Ingredient", and "Future Trends and Challenges".

The book is aimed at chemistry, engineering, and pharmacy under- and postgraduates and early to mid-career professionals and attempts to walk the reader logically through key aspects of the chemical R&D process. Does it achieve its aims? The answer has to be yes, but with slight reservations. It certainly gives a very good overview of the subject for new entrants to the industry or potential new entrants. Mid-career professionals may well find that they are familiar with most if not all of the subject areas, unless they have had a limited field of experience.

The chapters are well organised and well presented with a wealth of references for further reading and more in-depth discussions of particular topics. Almost all of the subject areas have been covered in more detail in other publications, but the advantage of this book is that brings all the subject areas together for anybody new to the industry. I have two main complaints about the book relating to two of the chapters and one or two omissions.

The chapters on "Active Pharmaceutical Ingredients: Structure and Impact on Synthesis" and "Route Design and Selection" are both largely updates of review articles that appeared in 2006. In addition I was surprised that there is no chapter on "Process Validation/Quality by Design", although both of these concepts are referred to several times throughout the book. Furthermore, a chapter on formulation issues and/or a formulator's view of active pharmaceutical ingredients (APIs) would have rounded the book off nicely. On the other hand, the chapter on "Rapid Early Development of Potential Drug Candidates" is an area which I have not encountered in any other book in the area. Thus, I feel this is a really good addition to the literature on chemical process research and development.

Overall, my complaints are relatively minor issues, and I have no hesitation in recommending this book to students and new and potential entrants to the pharmaceutical industry. Mid-career professionals and more experienced readers should approach the book with a little more caution but still may find a few areas of interest.

Will Watson

Scientific Update, Maycroft Place, Stone Cross, Mayfield, East Sussex TN20 6EW, United Kingdom, E-mail: will@scientificupdate.co.uk

AUTHOR INFORMATION

Notes

The authors declare no competing financial interest.

Published: May 4, 2012

   dx.doi.org/10.1021/op300105m | *Org. Process Res. Dev.* 2012, 16, 1154–1154