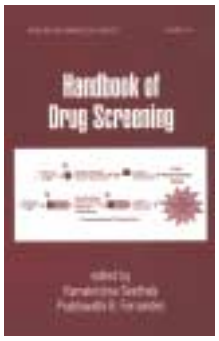

Handbook of Drug Screening

Edited by Ramakrishna Seethala and Prabhavathi Fernandes, Vol. 114 of the *Drugs and Pharmaceutical Sciences* series, Marcel-Dekker, 2001. Price US$195.00, 520 pages in hardback, ISBN 0-824-70562-9

It has been a pleasure reviewing the *Handbook of Drug Screening*, which is the latest volume in the *Drugs and Pharmaceutical Sciences* series. The book provides a useful and comprehensive selection of chapters that cover screening methodologies across a broad selection of drug target classes. Moreover, the scope extends from early drug discovery, typified by HTS, through to the *in-vitro* profiling of compounds for the assessment of ADME/Tox properties.

This book will be particularly useful for scientists entering the field of drug screening because the techniques employed are often distinct from the traditional low-throughput research assays performed in academic and industrial laboratories. This, combined with the large diversity of methods and screening formats, has necessitated the production of a guide, and this book is a solid attempt at achieving that objective.

As well as being a primer for the uninitiated drug screening scientist, the book serves well as a resource for experienced assay developers and screeners who might wish to expand outside their immediate area of expertise. Thus, chapters are devoted to methods for analyzing the key classes of enzyme, receptor and ion-channel targets. Enzymes and receptors are dealt with particularly comprehensively and cover the important areas of enzyme kinetics and receptor theory.

The theme of the volume is drug screening and, therefore, chapters that cover target identification and bioinformatics are somewhat unnecessary and, although interesting in their own right, offer limited value. Two topics related to the screening of novel genes that have been omitted, however, are substrate and ligand identification strategies for studying gene function, as well as direct-binding approaches for HTS when more conventional biochemical assays are unavailable. Capture of these areas would have completed an otherwise thorough coverage of drug screening techniques.

In addition to reviewing the methods available for screening various drug target classes, some chapters have been devoted to core themes such as homogenous (where no separation method is used), miniaturized, functional, and microbial assays and these serve as good sources for further reading. Inevitably there is some overlap between chapters with respect to the more common screening technologies, but this only serves to emphasize the wide variety of uses to which these methods can be put and does not detract from the content.

The bias in this book is towards assay methods. Areas that deserve more attention are those of instrumentation, robotics, automation and data management because these are significant components of the screening process. In particular, data management is sparsely covered considering that the volume of data generated by drug screening is several orders of magnitude greater than conventional drug discovery approaches.

An area of early screening that is growing as a result of the availability of higher-throughput methods is ADME/tox profiling and there is selective treatment of this area. Specifically, *in vitro* metabolism by cytochrome P450 enzymes and the use of primary hepatocytes are discussed but there is no mention of other screening systems, such as those for absorption (e.g. Caco-2), protein binding, HERG ion-channel interactions, and physicochemical properties.

In summary, I found this book to be a comprehensive review of most of the approaches available to the drug discoverer who uses HTS to identify novel small molecules. It is broad in scope, has appropriate themes and provides a good distillation of the biochemical assays required to screen the full spectrum of druggable targets. The focus is on assays, rather than instrumentation or data and, as a handbook, I am sure it will be well received. I have no hesitation in recommending it to scientists new to the field of HTS as well as to those who wish to stay abreast of an area that is likely to be a key element of drug discovery for the foreseeable future.

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