

# Book Reviews

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**Natural Product Pharmaceuticals: A Diverse Approach to Drug Discovery.** By Alan Harvey (Drug Discovery Ltd), Scrip Reports, Surrey, UK. May 2001. 120 pp. 20.5 × 29.5 cm. \$1460.00. No ISBN: Scrip Reference No. BS 1089E.

This book attempts to describe the role that natural products play in the discovery of drugs. It comprises seven chapters, beginning on page 13, which are preceded by the obligatory cover pages, a list of contents, tables, figures, and abbreviations used, together with a one-page Executive Summary. The presence of this last item suggests that the intended audience is upper management of pharmaceutical and biotechnology companies and potential investors, rather than practicing scientists. Scientists might however find the book very useful, although some sacrifices are inevitable as it attempts to cover such a large area in less than 100 pages of text. Readers of *J. Nat. Prod.* will be frustrated by the fact that despite the clearly expounded salient feature of natural products in providing broad chemical diversity, and the very large number of compounds mentioned, the book contains not a single chemical structure.

Chapter 1 (6 pp) provides a very short history and perspective of drug discovery processes with some natural product examples, followed by an outline of each of the subsequent chapters. Tables 1.1 and 1.2, which categorize "Natural product-derived drugs recently launched or in clinical development" by therapeutic application and source, respectively, and which have the same caveats for exclusion, manage to reach very different totals (115 and 143).

Chapters 2 (13 pp) "Drug Discovery Strategies: Identification and Optimisation" and 3 (10 pp) "Technical Aspects of Using Natural Products in Drug Discovery and Development" tend to have a lot of overlap. The former looks at the origin of various pharmacophores and emphasizes the role that natural products have played and how they may interact with combinatorial chemistry; it downplays the role of ethnopharmacology. The role of high-throughput screening and the demands it makes on natural product extracts are outlined. It describes a number of sources of extracts and the role of combinatorial genetics in the discovery of new "natural" products. A cluster of typographic errors result in the misspelling of clarithromycin, cyclosporin, and John Pezzuto's name. It also leaves the mistaken impression that artemisinin, camptothecin, clavulanic acid, cyclosporin, lovastatin, paclitaxel, sirolimus, and tacrolimus are all derivatives or analogues, rather than the original natural products.

Chapter 3, despite the title, fails to deal with what is generally considered "drug development". It discusses

access, reaccess, extraction, storage, isolation and purification, dereplication, structural elucidation, and screening and has a paragraph on patenting. It overstates the role of mass spectroscopy in dereplication, in that this valuable technique, alone, is seldom sufficient for rigorous, complete structural identification.

Chapter 4 (10 pp) looks at the importance of biodiversity in lead discovery and the legal and political aspects of bioprospecting. It gives an overview of the UN's Rio convention on biological diversity and the obligations of both supplying and receiving parties and gives examples of how different countries have dealt with issues. It also outlines the role played by different types of organisms as natural product sources.

Chapters 5 (13 pp) and 6 (14 pp) outline a large number of drugs in "clinical" and preclinical development, respectively. The first several pages of the former, although interesting, deal with already marketed drugs. Spelling errors in the proper names *Podophyllum peltatum* and *Catharanthus roseus* are unfortunate, as they may not be obvious to the novice and can frustrate attempts at further electronic searches of databases. Compounds are grouped mainly by therapeutic indication, and each chapter ends with some examples of collaborative agreements between companies. Any attempt to compile a list of preclinicals in development is bedeviled by the fact that companies do not usually publicize cessation of a development project.

The final chapter (24 pp) comprises a series of profiles of 16 small companies, worldwide, which are heavily involved in or specialize in natural product drug discovery and/or development. Contact information, principal officers, a brief description of the company, any mergers and acquisitions, the agreements made public, the known R and D portfolio, and in a few cases some financial information are tabulated.

After the text 122 references, 26 recommendations for "further reading", and a single web site are listed.

Overall the book does a reasonable job at an impossible task, covering a large area in a volume readable at a single sitting, where much of the data is not readily available. It is unfortunate that it is pitched and priced in such a way that it is difficult for the average scientist to access it.

**James B. McAlpine**

*Phytera, Inc.*  
377 Plantation Street  
Worcester, Massachusetts 01605

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