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BOOK REVIEW

VITOMIR ŠUNJIĆ, MICHAEL J. PARNHAM

Signposts to Chiral Drugs

Organic Synthesis in Action

Springer, Basel AG, 2011, 232 pages
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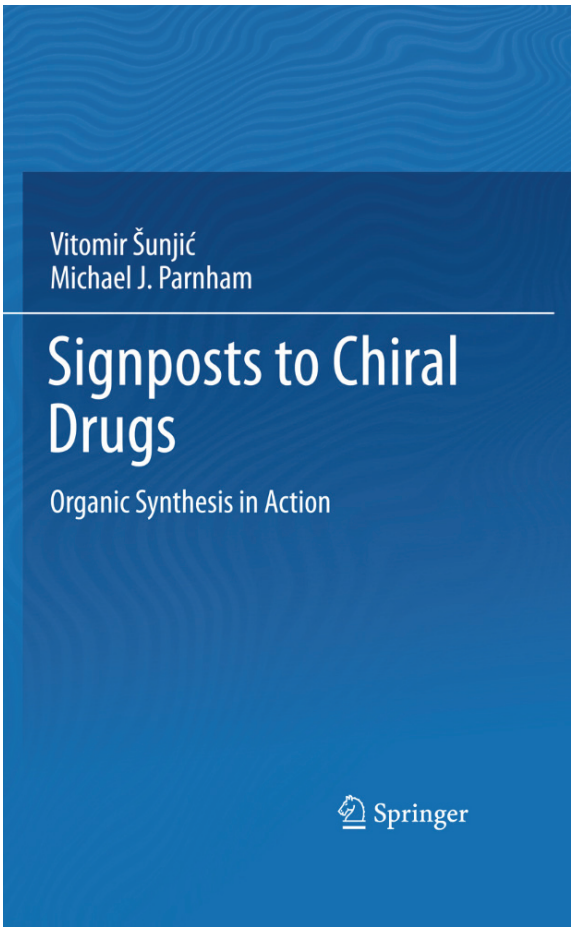

Professors Vitomir Šunjić and Michael J. Parnham, both experienced researchers and teachers, joint in an effort to produce a monograph on the role of synthetic organic chemistry in the discovery and development of new drugs. It is not surprising that these two scientists undertook this task since both are all their scientific lifes involved in tracking drugs that might be used in treating diseases.

The aim of their monograph was to demonstrate the use of advanced methods of modern synthetic organic chemistry in producing compounds with desired biological properties. This involves the consideration of their structural, stereochemical and conformational features since they represent the foundation for their biological action. I wish also to point out that this monograph is primarily aimed to researchers in organic chemistry and medicinal chemistry. Advanced research students in these two areas may find the monograph as a very helpful source of methods and techniques in both advanced preparative chemistry and medicinal chemistry. The monograph may also be a source of inspiration for inorganic medicinal chemists who are preparing inorganic compounds with possible medical applications. Interesting enough the publisher classified this monograph as to belong to the field of biomedicine.

The monograph consists of Preface, 16 chapters (each chapter is followed by the list of pertinent references), brief chapter summarizing synthetic methods and concepts discussed in chapters 2–16 and Index. In Preface (v–vii) authors pointed out why they prepared this monograph. To my mind this monograph presents authors' research philosophy exemplified on a set of 15 selected target structures to demonstrate the power of the organic synthesis which resulted in compounds, some of which are already established drugs and other being tested in clinical trials. The first chapter entitled *Organic Synthesis in Drug Discovery and Development* (pp. 1–12) presents succinctly the leading position of a compound in drug discovery - one needs first to have a chemical and then can test it. The compound may be obtained by preparation or isolated from natural sources.

A great feature of the following 15 chapters, each devoted to a given target structure, is an *Abstract* at the beginning of the chapter. The *Abstract* consists of three

parts: Biological target, Therapeutic profile and Synthetic highlights. Thus, the reader can briefly be informed about the material presented in the chapter. It is also important feature of the monograph that each chapter is complete in itself. Below we give the titles of the chapters and briefly mention the therapeutic use of considered compounds since this reviewer is mostly interested in their use and potential to treat ailments:

Chapter 2. Aliskerin Fumarate (pp. 13–27).
Used for oral treatment of high pressure.

Chapter 3. (R)-K-13675 (pp. 29–43).
This is a 2-aryloxy-propionic acide derivative. It is a lead candidate as a cholesterol-lowering drug.

Chapter 4. Sitagliptin Phosphate Monohydrate (pp. 45–54).
Used in treatment of type 2 diabetes mellitus.

Chapter 5. Biaryl Units in Valsartan and Vancomycin (pp. 55–68).
Valsartan is a leading drug in treating hypertension, whilst vancomycin is a broad spectrum antibiotic

Chapter 6. 3-Amino-1,4-Benzodiazepines (pp. 69–82).
Tested for a variety of diseases such as for use in the therapy of Alzheimer's disease.

Chapter 7. Sertraline (pp. 83–102).
Used for treatment of depression and anxiety-related disorders.

Chapter 8. 1,2-Dihydroquinolines (pp. 103–116).
Candidates for non-steroidal antagonist at the glucocoticoid receptor.

Chapter 9. (–)-Menthol (pp. 117–124).
Used as a local anaesthetic and analgesic, to reduce itching, as a gastric sedative agent and as a decongestant.

Chapter 10. Fexofenadine Hydrochloride (pp. 125–140).
Used for treating allergic diseases.

Chapter 11. Montelukast Sodium (pp. 141–154).
Used in the oral treatment of chronic, in particular nocturnal asthma.

Chapter 12. Thiolactone Peptides as Antibacterial Peptidomimetics (pp. 155–168).
In mimicking quorum-sensing peptides, the thiolactone peptides act as antibacterials, naturally regulating the growth of the bacteria.

Chapter 13. Efavirenz (pp. 169–178).
Used to treat patients with HIV-1 infection

Chapter 14. Paclitaxel (pp.170–195).
Used as an anticancer agent with broad spectrum of activity against resistent tumours.

Chapter 15. Neoglycoconjugate (pp. 197–225).
It has potential for the treatment of inflammation and cancer

Chapter 16. Aza-Epothilones (pp. 209–223).
These compounds are potential anticancer agents

I read an early version of this monograph and the final version before it went to printers. It is impressive text, though often succint, but specialists write like that. However, it also represents an interesting reading for scientists in other areas of chemistry, even outside of the realm of chemistry, *e.g.*, scientists in medical research institutes, university hospitals, pharmaceutical industry, *etc.*

Nenad Trinajstić