

## Book Reviews

**Malaria: Obstacles and Opportunities.** Edited by S. C. Oaks, Jr., V. S. Mitchell, G. W. Pearson, and C. C. J. Carpenter. National Academy Press, Washington, D. C. 1991. xv + 309 pp. 15.5 × 23 cm. ISBN 0-309-04527-4. \$39.95.

This book had its origin when the U. S. Agency for International Development (USAID) asked the Institute of Medicine (IOM) to establish recommendations to assist U.S. government funding agencies in malaria research, prevention, and control. In response, a 19 member committee was established by the IOM and chaired by Charles C. J. Carpenter; this committee was assisted by contributions from 64 additional scientists. The efforts of this committee are summarized in this book. The concluding sentence of the preface to this multi-authored book illustrates its dual political and scientific aims: "The Committee is hopeful that the conclusions and recommendations it offers will provide the impetus for critical decisions and for needed research, which will allow progress to be made in the global fight against malaria."

Chapter 1 summarizes the main conclusions and recommendations of the committee. Chapter 2 provides a very brief introduction to malaria as a disease. Chapter 3 combines a historical sketch of malaria with a summary of U. S. government funding on malaria during the past decade. The remaining chapters (4-12) each follow an identical format, and are divided into three major subheadings: (1) Where We Want To Be In The Year 2010, (2) Where We Are Today, and (3) Research Agenda.

The subjects of chapters 4-12 cover clinical, social, and behavioral aspects of malaria, diagnostic tests, parasite biology, vector biology and control, drug and vaccine discovery, epidemiology, and economics of malaria control. Chapters 6 (Parasite Biology), 8 (Drug Discovery and Development), and 9 (Vaccines) are likely to be of the greatest value to a medicinal chemist, although useful, albeit brief, summaries of many other facets of malaria are to be found in this book.

Although this book does not provide an in-depth review of any one topic in malaria, it does succeed in pointing out, once again, that to control or cure malaria will require the combined efforts of researchers in multiple scientific disciplines, as well as the necessary financial support.

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**Molecular Structure and Biological Activity of Steroids.** Edited by M. Bohl and W. L. Duax. CRC Press, Inc., Boca Raton, FL. 1992. 471 pp. 16 × 24 cm. ISBN 0-8493-6955-X. \$169.95.

The topics covered in this multi-author monograph include X-ray, NMR, and molecular modeling methods for steroid structural analysis; methods of QSAR analysis applied to steroids; general considerations of steroid receptors including molecular biological and protein

structural aspects; and specific SAR analysis of steroid classes such as androgens, glucocorticoids, vitamin D, brassinosteroids, and cardiotonics. Discussion of steroid biosynthetic enzyme inhibition is limited to aromatase.

The book is divided into 12 chapters: (1) Steroid Structure and Function from X-ray Crystallographic Studies, (2) <sup>1</sup>H and <sup>13</sup>C NMR Spectroscopy of Sterols, (3) Theoretical Investigations on Steroid Structure and Quantitative Structure-Activity Relationships, (4) Two Approaches to Structure-Activity Relationships in the Field of Sex Steroids and Their Analogs, (5) Stilbestrol Estrogens: Molecular/Structural Probes for Understanding Estrogen Action, (6) Aromatase: Mechanism and Inhibition, (7) Structure-Activity Relationships of Glucocorticoids: Importance of the Regulated Gene and Trans-Acting Factors in Determining Glucocorticoid and Antiglucocorticoid Activity, (8) Molecular Structure and Biological Activity of Vitamin D Metabolites and Their Analogs, (9) Molecular Structure and Biological Activity of Brassinolide and Related Brassinosteroids, (10) Structure-Activity Relationships of Androgens and Anabolics, (11) Structure-Activity Relationships of Steroidal Neuromuscular Blocking Agents, and (12) Molecular Biology of Cardiotoxic Steroids.

The chapters are generally well-written and references at the end of each chapter are reasonably up-to-date. The discussions of methods and SAR are in depth and so do not provide easy reading for the uninitiated looking for a general overview of steroid biology. Rather, this book would appeal to those working in the area of steroid medicinal chemistry. While it is not likely to serve as a key desk reference, this book, nevertheless, should be a valuable resource, an advanced educational tool, and an excellent addition to the steroid researcher's library.

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**Antitumor Steroids.** By Robert T. Blickenstaff. Academic Press. San Diego. 1992. xvi + 350 pp. 15.5 × 23 cm. ISBN 0-12-10592-9. \$75.00.

This book comprises nine chapters, most of them written by Blickenstaff, or in some cases with collaboration with co-authors. It reviews rather completely the information on steroids with antitumor or anticancer activity which has been scattered through the literature for more than 20 years. According to the author, the volume was written primarily for organic chemists, medicinal chemists, biochemists, and pharmacologists interested in the use of steroids in the treatment of cancer. Chemists will probably find the coverage of the subject in this volume of most interest. Biochemistry and pharmacology are touched on only lightly and relatively superficially. The chapters are organized under the type of steroid utilized to prepare antitumor agents. After a brief introduction, chapter 1 briefly discusses steroid receptors, antitumor activity, and

antitumor testing. With a few exceptions, the references in this chapter for the most part are over 10 years old. This is not surprising, because the heyday of research on steroids with antitumor activity occurred at least 10–20 years ago, and in some cases even earlier. Chapter 2, written by Blickenstaff in collaboration with Guy Leclercq, deals with estrogen and anti-estrogens. It is a very thorough review with 210 references. As is the case with most of the reviews, the major studies were conducted more than 10 years ago and hence very few references will be found of recent date. Organic, steroid, and medicinal chemists will like the style of this chapter and of many of the others in which the synthesis of the various compounds is thoroughly covered, both in charts and in concise but informative discussions in the text. Very few of the compounds covered in this chapter and in others have survived the test of time in terms of useful agents. Indeed, in many cases, the antitumor evaluations and tumor systems in which many of the compounds were initially found to be active have been superseded. This is also the case in succeeding chapters. At the end of this chapter there is a brief summary review which concisely summarizes the current state of clinically active compounds.

Chapter 3, written by Blickenstaff, contains a thorough discussion of steroids derived from androgens and other androstane derivatives. There are 235 references, most of which are relatively old. However, a few recent citations that were available are included. Excellent chemical discussions are presented in charts and in the text. The chapter is concluded by a brief summary which discusses the agents that have been used in chemotherapy. There is a relatively brief section on  $5\alpha$ -reductase inhibitors. This section could have used a more detailed discussion as it is now considered one of the most important possible areas in which steroidal analogs may find use. Chapter 4, prepared by Blickenstaff in collaboration with Gerault and Buzdar, deals with progestins and pregnane derivatives. The coverage is thorough with 208 references and, as usual in a research area which is relatively mature, recent

references are scarce. Unlike the previous sections, the chemical discussion is less detailed in this section. Pharmacology is covered in one brief paragraph.

Chapters 5 and 6, dealing with corticoids and sterols, respectively, have been reviewed less thoroughly. In contrast to the previous chapters, considerably less chemical coverage was available. One of the best chapters in the book, "Vitamin D", was prepared by Calverly and Jones. This chapter is covered in a very thorough manner and represents an excellent review for readers with particular interest in vitamin D chemistry. This chapter in particular presented excellent SAR information. There were 186 references including a reasonable proportion of recent papers.

Chapter 8 dealing with cardinolides and Chapter 9 dealing with bile acids and miscellaneous steroids are presented in a less thorough manner and with fewer references than previous chapters. A useful appendix with suggested supplementary readings for each chapter is attached. There are excellent author–subject indices. The author index in particular gives not only the page and the reference number but also the page on which the full reference can be found.

In summary, this book will be useful to individuals with interests in steroid antitumor agents. In many cases, thorough discussion is presented of the various types of steroids and their derivatives which have been or currently are used in antitumor testing. Chemists will find the volume particularly interesting because of the detailed presentation and discussion of synthetic methods. Pharmacology and modes of action of the various agents are treated in a less thorough manner, possibly because in many cases this type of information is still not thoroughly known. The book should certainly be included in all medicinal chemistry libraries.

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