

only to those concerned with membrane research but also to other drug researchers. Medicinal chemists will want to have library access to these thought-provoking volumes.

Staff

Progress in Medicinal Chemistry. Volume 24. Edited by G. P. Ellis and G. B. West. Elsevier Science Publishers B. V., Amsterdam. 1987. v + 359 pp. 15 × 21 cm. ISBN 0-444-80876-0. \$275.00.

This volume continues the long-standing tradition of providing readers with excellent reviews of topics relevant to medicinal chemistry. Eight reviews are presented and five of these are on topics which may be considered in the mainstream of drug research, namely, histamine receptors in the central nervous system, platinum antitumor agents, cannabis and cannabimimetic agents, hypoglycemic agents, and calcium channel blockers. The other chapters include discussions on ricin and ricin immunoconjugates, molybdenum hydroxylases, and aldose reductase inhibitors.

The chapter on ricin describes not only its occurrence, structure, and biosynthesis but also its conjugation with monoclonal antibodies in order to achieve tumor-specific cytotoxicity. Ever since the technology for production of monoclonal antibodies was first described in 1975 by Köhler and Milstein, numerous groups have attempted to use antibodies directed against specific tumor antigens for selective delivery of cytotoxic drugs to tumors. Despite the attractiveness of this approach, many problems and limitations exist which are brought out in this chapter. Although such problems are well-known to researchers active in the field, others will benefit from reading this interesting and well-written chapter.

The molybdenum hydroxylases are widely distributed in nature, but they have generally not been grouped under this heading. The aldehyde oxidases and xanthine oxidase are the major enzymes belonging to this group, which the writer believes may be as important as the cytochrome P450 system in drug detoxification. This chapter reviews the substrates for the molybdenum hydroxylases, which include a number of xenobiotics such as methotrexate, quinine, 6-mercaptopurine, and acyclovir. Moreover, the distribution and species variability associated with these enzymes has important consequences in drug bioavailability—a matter of considerable importance in drug development.

The search for aldose reductase inhibitors is aimed at finding drugs that will reduce the incidence of degenerative complications of diabetes which affect the eyes, kidneys, and other tissues. While the exact cause of these complications is unknown, and may even be multifactorial, it is known that sorbitol selectively accumulates in affected tissues of animals with experimentally induced diabetes. In hyperglycemic states, the hexokinase pathway for glucose metabolism becomes saturated and the excess glucose becomes available for conversion to sorbitol by aldose reductase. Accordingly, it is proposed that aldose reductase inhibitors should retard this accumulation and impede the development of diabetic complications which are only partially controlled by insulin. Structure-activity relationships for a large number of inhibitors are reviewed.

In all cases, chapters are well-written and contain references up to and including publications appearing in 1986. Libraries and regular purchasers of this series will want to continue their subscription. Researchers in the specific areas covered will find the reviews valuable and teachers in medicinal chemistry and pharmacology will find them useful for updating their lectures.

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Enzymatic Peptide Synthesis. By Willi Kullmann. CRC Press, Boca Raton, FL. 1987. 140 pp. 18 × 26 cm. ISBN 0-8493-6841-3. \$89.00.

This book on enzymatic peptide synthesis represents a rather comprehensive review of the area through 1985. The text is clear, concise, and nicely illustrated. Each chapter is well-referenced with the references appearing at the end of each chapter.

Chapter 1 provides an interesting historical overview of peptide synthesis, both classical and enzymatic. Chapters 2–5 discuss the thermodynamic and mechanistic aspects of the enzymatic approach. Much attention is paid to the thermodynamic approach toward enzymatic synthesis rather than the kinetic approach. Lucid discussions of the effects of organic cosolvents, pH, and temperature on product yield are provided. The author has, however, neglected to discuss the utilization of reverse micelles. Also, it was somewhat disappointing to see the now defunct “classical” charge-relay system of the serine proteases treated as dogma. Chapters 8–10 describe the achievements of the enzymatic approach from the synthesis of the dipeptide sweetener aspartame to the total synthesis of biologically active peptides, and finally the enzymatic manipulations of whole proteins. Chapters 11–12 discuss the kinetics of protease-controlled peptide synthesis and the utility of proteases in protective group chemistry, respectively. Chapters 13–14 close with a discussion of the shortcomings and alternatives of this approach as well as providing a glimpse at the future direction of this area.

Though this book provides an in-depth review of the area through 1985, the reader is directed to the current literature for recent advances in the area such as the use of non-proteases, amidase-damaged proteases, and catalytic antibodies, and the new approach to enantioselectivity control by reaction media. In summary, the book comes well-recommended to those interested in enzymatic peptide synthesis.

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The Alkaloids. Volume 32. Edited by Arnold Brossi. Academic Press, Inc., New York. 1988. ix + 454 pp. 16 × 24 cm. ISBN 0-12-469532-9. \$99.00.

The 32nd volume of the notable Alkaloid Series contains five chapters on a broad range of topics. Chapter 1 by Y. Hashimoto, K. Kawanishi, and M. Morivasu is entitled *Forensic Chemistry of Alkaloids by Chromatographic Analysis*. This area was last reviewed in 1970. Since that time great advances in methodology, notably in the development of instrumentation and chromatographic columns for high-performance liquid chromatography has taken place. The authors have presented this information in a manner which will be useful, particularly to individuals interested in a general survey. Analytical techniques for each alkaloid covered are discussed. Thus, GC or GCMS, HPLC, and TLC procedures are given for each compound. Little space or attention is given to super critical fluid chromatography or to the discussion of LCMS, which is now at an excellent working stage. The literature cited, unfortunately, with only a few exceptions, is reviewed only through the early 1980s. Nevertheless, a useful review on analytical methods for opium alkaloids and heroin, amphetamines, the constituents of khat, the coca alkaloids, cactus alkaloids, harmala alkaloids, tryptamines, ergot alkaloids, LSD, and tobacco alkaloids is presented.

Chapter 2 *Steroidal Alkaloids of Apocynaceae and Buxaceae* is reviewed by Atta-ur-Rahman and Anjum Muzaffar. Reviews in this series were last published in 1973 and hence an update is certainly in order. In the style of this excellent review, isolation and structure elucidation are presented in the most detailed manner. Experimental details concerning UV, IR, NMR, and mass spectra of the compounds are presented along with detailed structure proof of the various steroidal alkaloids. The various alkaloids discussed under Apocynaceae include the conanine group, the pregnane group, the paravallarine group, and the aminoglyco steroids. A detailed description of the synthesis and chemical transformation in each of the above groups is presented. An equally detailed section dealing with the alkaloids of the Buxaceae is then presented in a manner similar to that already presented in the previous section.

Following these well-described sections, two extremely brief statements on biosynthesis and pharmacology are presented. This information is so sketchy it could have well been omitted. Although most of the 245 literature citations are prior to 1980, they do provide a useful review of the literature and include a number of recent references (1986–1988) from Atta-ur-Rahman's group.