Book Reviews

Organosulfur Chemistry. Synthetic Aspects. Edited by Philip Page. Academic Press Ltd., San Diego, CA. 1995. vii + 277 pp. 17 × 24.5 cm. ISBN 0-12-543560-6. $55.00.

This book is the first of a series planned to cover a range of topics in organosulfur chemistry. This field has become of increasing interest over the last few years, especially in the areas of heterocyclic chemistry, stereocontrolled processes, and the synthesis of chiral products. The present volume reviews five areas of organic sulfur chemistry. The first chapter (by Guy Solladie and M. Carmen Carreño) describes the preparation of chiral β-keto sulfoxides and analogues and their utilization in organic synthesis, mainly the stereocontrolled reduction of β-keto sulfoxides and the stereocontrolled Diels–Alder reaction of vinyl and dienyl sulfoxides. This is followed by a chapter (by David Crich) that reviews reactions of sulfur-centered radicals, the generation of alkyl radicals from organosulfur compounds, and carbon–sulfur bond formation by the reaction of these radicals with functional groups containing sulfur. The next chapter (by Christopher M. Rayner) discusses synthetically useful reactions involving thiiranium ion intermediates. Recent developments in the syntheses and chemistry of thiacetals, including their utilization in medicinal and agricultural chemistry, are detailed in the next chapter (by William W. Wood). The final chapter (by Renji Okazaki) summarizes the production, properties, and chemistry of stable and transient thioaldehydes. Each chapter is thoroughly referenced, and the volume concludes with complete author and subject indexes.

This initial volume of *Organosulfur Chemistry* reviews synthetic aspects of an exciting and rapidly expanding area of organic chemistry. It will be of interest to all chemists concerned with organic synthesis. The book is recommended for institutional libraries. Specialists will want to include the series in their personal libraries.

Staff

JM950525F

Enediyne Antibiotics As Antitumor Agents. Edited by Donald B. Borders and Terrence W. Doyle. Marcel Dekker, Inc., New York. 1995. xii + 459 pp. 15.5 × 23.5 cm. ISBN 0-8247-8938-5. $165.00.

Enediyne antitumor antibiotics are a novel class of antibiotics representing the most potent antitumor agents presently known. The striking activity of these compounds is attributed to their unique chemical features; they are 9- and 10-membered cyclic enediynes which are joined with novel sugar groups and an allylic methyl trisulfide moiety. These unique structural features in agents such as calicheamicin and esperamicin permit radical formation and subsequent DNA damage which may account for the activity and potency of these compounds. Recognition of the unique structure of these substances and their likely mode of action has led to their study and modification as a possible route to the derivation of new clinically useful antitumor drugs.

Enediyne Antibiotics As Antitumor Agents is a comprehensive, up-to-date review of the enediyne antibiotic antitumor drugs. Following an introductory chapter describing the background and status of these agents, the book is divided into five parts incorporating 18 chapters covering the chemistry, biochemistry, microbiology, and biology, as well as the preclinical and clinical study, of these substances. Parts 1–4 address the calicheamicin, esperamicin, dynemicin, and neocarzinostatin classes of enediyne antitumor antibiotics. In Part 5, the synthesis of these complex compounds is reviewed. The total synthesis of calicheamicin γ_1^I is described in detail.

The enediyne antitumor antibiotics represent a unique, exciting class of drugs that offers a promising starting point for possible derivation of new antitumor drug products. The present volume collects much of the knowledge of these agents. It will therefore be of interest to medicinal chemists, as well as researchers in other disciplines, involved in the discovery of anticancer drug products.

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JM9505268

Annual Review of Pharmacology and Toxicology. Volume 35. Edited by A. K. Cho, T. F. Blaschke, H. H. Loh, and J. L. Way. Annual Reviews, Inc., Palo Alto, CA. 1995. viii + 751 pp. 16 × 23 cm. ISBN 0-8243-0435-7. $47.00.

The high-quality characteristic of this series of short reviews is maintained in this latest volume. The 28 chapters encompass a wide range of well-chosen contemporary pharmacological topics and interests. Thus, two chapters address different aspects of pharmacology/physiology of nitric oxide; other chapters address, *inter alia*, the gastric acid pump, risk assessment of environmental chemicals, effects of lead on neurotransmitter systems, physiology and pharmacology of polyamines, purinergic receptors, adenosine receptors, selective cytochrome P-450 inhibition, and mutagenesis in transgenic animals.

This reviewer found the chapter "A Research Trail over Half a Century", a brief scientific autobiography of Professor Robert F. Furchgott, especially enjoyable. This eminent scientist's description of his interactions with the scientific giants of their day, coupled with his account of his own seminal research, leaves the reader awed.

The volume is well done; chapters are uniformly well written and well referenced with copious 1993 and 1994 literature citations. Few typographical errors were noted; chemical structures are accurate and well reproduced.

Careful perusal of this volume is a "must" for researchers in pharmacology, medicinal chemistry, and pharmaceutics, as well as others concerned with the strategy and progress of drug discovery.

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JM9505270

Progress in Medicinal Chemistry. Volume 31. Edited by G. P. Ellis and D. K. Luscombe. Elsevier Science B. V., Amsterdam, The Netherlands, 1994. viii + 465 pp. 15 × 21.5 cm. ISBN 0-444-818073. $214.25.

The nine chapters in this latest volume of the well-known and highly regarded series address New Hypoglycaemic Agents; Inhibitors of Human Leukocyte Elastase; The Medicinal Chemistry of the Azido Group; Gastric H^+/K^+-ATPase Inhibitors; Semi-Synthetic Derivatives of 16-Membered Macrolide Antibiotics; β-Lactamases: Targets for Drug Design; Antimicrobial Activity and Action of Silver; Inhibition of the Pharmacological Effects of Endothelin; and Potassium Channel Activators: Pharmacological Methods, Models, And Structure–Activity Relationships. The topics were in general well-chosen to reflect contemporary research directions, and the chapters are uniformly well-written and carefully proofread. Chemical structures are well-drawn and well-reproduced. Exciting newer directions of future drug therapy are suggested by, *inter alia*, the discussions of gastric transport ATPase inhibitors in acid-related disorders of the upper GI tract; of uses of potassium channel activators in asthma and hypertension; of the physiology and pharmacology of the extremely potent endogenous vasoconstrictor protein endothelin; and of elastase inhibitors as an approach to treatment of emphysema. The intriguing extensive chapter on the azido group reviews some appropriate fundamental aspects of the organic chemistry, biochemistry, and physiology of this medicinal chemically/pharmacologically peculiar functional group. Then, beginning with the role(s) of the azido group in anti-AIDS therapy, the narrative proceeds to address anti-infective azides, as well as azides affecting CNS function, cardiovascular function, and the inflammatory response.

As with prior volumes, this one will be of interest and useful to medicinal chemists, pharmacologists, and other drug researchers. A negative factor is the high cost of the book.

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