Book Reviews

Life During a Golden Age of Peptide Chemistry. The Concept and Development of Solid-Phase Peptide Synthesis. By Bruce Merrifield. American Chemical Society, Washington, D.C. 1993. xii + 298 pp. 15 × 23 cm. ISBN 0-8412-18412-0. $24.95.

This volume of Editor Jeffrey Seeman's *Profiles, Pathways and Dreams* series is an autobiography of Nobel Laureate Bruce Merrifield. In keeping with other volumes in the series, one is left with not only an appreciation for the scientific achievements of the author, but also an understanding of his personal life and a distinct feeling about his personality. Merrifield's conception and development of solid-phase peptide synthesis represents an achievement which has revolutionized this vitally important area of organic and medicinal chemistry. The calm, purposeful, hard-working, hands-on, and meticulously detailed approach to chemistry of this modest and unpretentious scientist clearly surface throughout the book. A number of photographs aid in acquainting the reader with the personal and professional side of this eminent chemist.

The overall objectives of the series, i.e. to confirm the admiration of those who personally know the author and to inspire and encourage, both in science and life, those who do not personally know him, are beautifully achieved in this volume. All chemists will derive a great deal by reading this entertaining and inspirational autobiography.

Staff

Organofluorine Compounds in Medicinal Chemistry and Biomedical Applications. Edited by R. Filler (Senior Editor), Y. Kobayashi, and L. M. Yagupolskii. Elsevier, Amsterdam. 1993. ix + 386 pp. 17 × 24 cm. ISBN 0-444-89768-2. $225.75.

This book, Volume 48 in the *Studies in Organic Chemistry* series, is an excellent addition to a growing list of monographs dealing with the chemistry and biochemistry of organofluorine compounds. The editors have chosen important areas for review, and the individual authors have presented the material effectively. Following an overview written by Professor Filler (chapter 1), each the 10 remaining chapters focuses on a specific biochemical and/or medical application of organofluorine chemistry. Sections dealing with the development of new fluorinated drugs targeted to specific medical applications or disease states include chapters reviewing fluorine-containing antiviral and anticancer drugs (chapter 2), fluorine-containing cardiovascular drugs (chapter 3), and fluorine in the chemistry of central nervous system agents (chapter 7). Reviews of applications of particular compound classes to medicinal chemistry are found in chapters on fluorinated β-lactams and activities of β-lactamase and elastase inhibitors (chapter 5), antibacterial activities of fluoroquinolone carboxylic acids (chapter 6), new approaches to fluorinated amino acids and peptides and medical applications thereof (chapter 8), and fluorinated compounds related to the arachidonic acid cascade (chapter 9). Additional important applications of fluorine-containing compounds are covered in chapters reviewing recent developments in fluorine-substituted volatile anesthetics (chapter 4), in the synthesis and applications of ^{18}F-labeled compounds for PET (chapter 10), and in fluorinated surfactants (chapter 11).

The individual chapters are well-written and well-illustrated, and abundant references are provided. An impressive proportion of the material is up to date, and in many cases, extremely comprehensive in scope, a reflection of the expertise of the contributing authors. Although no single volume can adequately cover all of the important advances being made in biomedical applications of organofluorine chemistry, this book represents a major contribution. Unfortunately, the high cost of this book undoubtedly will limit individual ownership.

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Organic Reactions. Volume 44. Editor-in-Chief Leo A. Paquette. John Wiley & Sons, Inc., New York. 1993. vii + 613 pp. 16 × 23 cm. ISBN 0-471-30302-X. $95.00.

Volume 44 of this well-known series contains chapters that cover "Preparation of α,β-Unsaturated Compounds and Nitriles by Selenoxide Elimination" (by Hans J. Reich and Susan Wollowitz) and "Enone Olefin [2 + 2] Photochemical Cycloadditions" (by Michael T. Crimmins and Tracy L. Reinhold). These comprehensive reviews of synthetic reactions are presented from the preparative viewpoint with particular attention to limitations, interfering influences, effects of structure, and selection of experimental techniques. Each chapter includes several detailed procedures illustrating significant modifications of the method. Detailed tables of nearly all known examples of the reaction are included. The book also includes a cumulative listing of chapters by volume, an author index for volumes 1–44, and a chapter and topic index for volumes 1–44.

The value of this series is recognized by all organic and medicinal chemists. Addition of this volume to the *Organic Reactions* collection is a necessity for chemistry libraries.

Staff

Perspectives in Bioconjuate Chemistry. Edited by Claude F. Meares. American Chemical Society, Washington, DC. 1993. vii + 209 pp. 21.5 × 27.5 cm. ISBN 0-8412-2672-5. $34.95.

This volume contains reviews and teaching editorials published in the journal *Bioconjugate Chemistry* over the last 3 years. In total, 16 articles, divided into sections dealing with proteins, nucleic acids, synthetic polymers, targeted antibodies, and antibody–enzyme conjugates, plus an introductory chapter are included.

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Bioconjugate chemistry, which involves the joining of two different molecular functions by chemical or biological means, includes many areas, e.g., the conjugation of antibodies, nucleic acids, and other biologically active molecules with each other or with any molecular groups that add useful properties (drugs, radionuclides, toxins, fluorophores, photoprobes, inhibitors, enzymes, haptens, ligands, etc.). Thus, this rapidly developing field is of interest to many medicinal chemists and other scientists concerned with drug discovery. These researchers will find this book a useful resource.

Staff

Handbook of Enantioselective Catalysis with Transition Metal Compounds. Volume I. Products and Catalysts. Volume II. Ligands-References. By Henri Brunner and Wolfgang Zettlmeier. VCH Publishers, Inc., New York. 1993. v. I, xvii + 558 pp; v. II, ix + 359 pp. 20 × 27 cm. ISBN 1-56081-811-5. $498.00 (set).

These two volumes consolidate data on all compounds enantioselectively synthesized to date employing transition-metal catalysts. The data are presented in tabular form: (i) the Product Table, in which all optically active products and enantioselective catalysts are listed, (ii) the Ligand Table, in which all chiral anxiliaries are collected, and (iii) References. Compounds in the tables are listed according to molecular formula. In the Product Table entries are starting material, product, enantiomeric excess of the product(s), enantiomeric catalyst(s), and literature reference(s). In the Ligand Table the structures of all known optically active compounds (a total of 2073) that have been used as enantioselective transition-metal catalysts are collected together with their configuration, sign, acronym, and literature reference(s).

This two-volume handbook compiles, in tabular form, all synthetic compounds, chiral molecular catalysts, and ligands reported in the literature through mid 1992. It will be a valuable reference to all scientists concerned with the synthesis of chiral compounds which are so important in pharmaceutical, agrochemical, flavor, and fragrance product development.

Staff

In Vitro Toxicology. Edited by Shayne Cox Gad. Raven Press, Ltd., New York. 1993. 16 × 24 cm. ix + 290 pp. ISBN 0-88167-974-7. $87.00.

Concern about animal welfare, economics, and the need for greater sensitivity and understanding of mechanisms of toxicity has precipitated many meaningful advances in nonanimal models as a means for identifying and understanding substances that can harm or kill humans and other higher organisms. Such in vitro models are now available for a range of endpoints, e.g., irritation, sensitization, lethality, mutagenicity, and developmental toxicity, as well as for all target organs, e.g., skin, eye, heart, liver, kidney, nervous system, etc. Each of these topics, along with primary models and their uses and limitations, is reviewed in this book. Chapters that describe the principles involved in the selection and use of the models and that address concerns about safety and regulatory acceptance are also included.

This book provides an excellent summary of in vitro models for understanding and evaluating the toxicology of chemical substances. It presents science that is relevant to all concerned with medicinal agents, consumer products, agrochemicals, etc. Medicinal chemists and others concerned with the development of new drug products will find this clearly written, concise, well referenced, and adequately indexed description of in vitro toxicology an important source of information.

Staff

Molecular Biology and Pharmacology of Bradykinin Receptors. Molecular Biology Intelligence Unit. By Ronald M. Burch, Donald J. Kyle, and Thomas M. Stormann. R. G. Landes Company, Austin, TX. Distributed by CRC Press, Boca Raton, FL. 1993. viii + 107 pp. 18.5 × 27 cm. ISBN 1-879702-83-5. $89.95.

Although a pathophysiological role has long been suggested for bradykinin, it is only recently that the development of bradykinin B_1 and B_2 receptor antagonists has enabled detailed examination. The recent cloning and sequencing of the B_1 receptor from rat uterus and isolation of the B_2 receptor have further stimulated interest in bradykinin research. Bradykinin receptor antagonists are currently being examined clinically in the treatment of allergic rhinitis, rhinovirus infections, sepsis, pancreatitis, and asthma.

This book, a part of the *Molecular Biology Intelligence Unit*, is written by active researchers of the medicinal chemistry, molecular biology, and pharmacology of bradykinin receptors. The first three chapters describe the kallikrein–kininogen–kinin system, the pharmacological classification of kinin receptors, and molecular biological approaches to the study of bradykinin receptors. Transduction and regulation of bradykinin signaling are considered in the next two chapters. The final three chapters provide insights into the nature of bradykinin receptors and their binding conformations derived from spectroscopic and computer-assisted modeling studies and from the study of conformationally-constrained peptide antagonists.

This timely, thoroughly referenced, and adequately indexed book will be of interest to all bradykinin and other neuropeptide researchers. It provides an outstanding example of the applications of modern methods as a route to the rational design and development of potential therapeutic agents.

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