

REVIEWS

Kinetics of Drug Action. Handbook of Experimental Pharmacology. Vol. 47. Edited by J. M. van ROSSUM. Springer-Verlag, 175 Fifth Ave., New York, NY 10010. 1977. 436 pp. 17 × 24.7 cm. Price \$101.20.

The aim of this book, as stated by the Editor, is: "to present an integrated treatment of the kinetics of drug action, covering the principles of drug transport, kinetics of drug absorption, distribution, and elimination as well as the principles of drug-receptor interactions under steady-state conditions and the kinetics of the drug-receptor interaction." Since the action of a drug in the body is basically a kinetic event, a thorough appreciation of the fundamentals of kinetic concepts is essential to the understanding of the nature of drug action. This book is a comprehensive survey of the available knowledge (mostly through 1974) on many of the kinetic aspects of drug action.

Chapter 1, Physicochemical Fundamentals and Thermodynamics of the Membrane Transport of Drugs, covers several important topics of the membrane transport of drugs and biological substances, with a particular emphasis on kinetic and thermodynamic principles relevant to transport phenomena. The molecular structure and physicochemical models of biomembranes are critically evaluated. Although many books and review articles have exclusively dealt with the theories of membrane transport, this chapter serves as a useful review of the subject and assists the reader to understand better the role of biological membranes in drug action.

Chapter 2, Pharmacokinetics, prepared by the Editor from the work left by the late Professor E. Krüger-Thiemer, begins with the definitions of pharmacokinetic terms in common use and then presents an excellent outline of pharmacokinetics. This chapter will be of great value to anyone who requires a quick access to the basic principles of pharmacokinetics.

Chapter 3, Pharmacokinetics of Biotransformation, deals with kinetic aspects of drug metabolism. Many specific as well as stereotype examples of drug elimination by enzymatic reactions are succinctly described, with sufficient illustrations taken from the research data.

Chapters 4, 5, and 6 are on General Theory of Drug-Receptor Interaction, A Critical Survey of Receptor Theories of Drug Action, and Drug-Receptor Inactivation: A New Kinetic Model, respectively. These chapters cover the molecular concepts of drug-receptor interactions, historical development of receptor theories and their limitations, and mathematical equations relevant to the receptor models. The discussion also includes the general principles of drug action and receptor inactivation theories. Each chapter is written with ample background information and is well referenced.

The final chapter, entitled Kinetics of Drug-Receptor Interaction, presents a critical review of the kinetic concepts of drug-receptor interaction from the approach of the drug to the receptor to the formation of an active complex and the dissociation of the complex thereafter. The nature of the receptor site, conformational changes in the drug-receptor complex, and intermolecular forces responsible for the reactions are also discussed. In the Appendix, several mathematical equations for the development of the receptor kinetics are derived.

In summary, most of the information in this book can be found elsewhere, but the book justifies its value by covering in one volume several related subjects essential to the understanding of drug action. I recommend this book to beginners as well as to those who are well advanced in the areas of molecular pharmacology and pharmacokinetics. Regrettably, its excessively high price could prevent many from acquiring a personal copy.

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Aromatic and Heteroaromatic Chemistry. Vol. 5. A Specialist Periodical Report. Edited by C. W. BIRD and G. W. H. CHEESEMAN. The Chemical Society, Burlington House, London W1V 0BN, England. 1977. 566 pp. 14.5 × 22.5 cm. Price \$70.00. Available from Special Issues Sales, American Chemical Society, 1155 Sixteenth St., N.W., Washington, DC 20036.

This volume surveys the chemical literature abstracted between July 1975 and June 1976 and covered by Vols. 83 and 84 of *Chemical Abstracts*. The organization and high standard established by earlier volumes in this series are maintained in this fifth volume.

The report is comprised of 14 chapters. The 15 international contributing experts have condensed and organized an enormous volume of material into a very readable book. All sections are liberally illustrated with chemical structures and reaction sequences. A random turn of the pages quickly provides information on synthetic work, mechanism studies, stereochemistry, and a fascinating range of exciting and intriguing aromatic and heteroaromatic compounds.

The chapter titles include: Ring Systems of Topical Interest; Intermolecular and Intramolecular Cyclization Reactions in Ring Synthesis; Cycloaddition Reactions; Ring Transformations; Electrophilic Substitution on Carbon; Electrophilic Substitution on Heteroatoms; Nucleophilic Substitution; Aromatic Substitution by Free Radicals, Carbenes, and Nitrenes; Addition Reactions; Ring-cleavage Reactions; Reactions of Substituents; Porphyrins and Related Compounds; Naturally Occurring Oxygen-ring Compounds; and Other Naturally Occurring Compounds. Although a subject index is not present, the volume has a complete author index and includes some 3071 literature citations.

As a reference book, this report will be invaluable to a large number of chemists who wish to keep abreast of the varied research activities in aromatic and heteroaromatic chemistry.

This is the last report for which Professors Bird and Cheeseman will act as Senior Reporters. They are to be commended for their leadership and guidance in setting the standards of quality recognized for this series. The stated objective of providing a service to the active specialist chemist has been well served by these reports.

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NOTICES

Antifungal Compounds, Vol. 2: Interactions in Biological and Ecological Systems. Edited by MALCOLM R. SIEGEL and HUGH D. SISLER. Dekker, 270 Madison Ave., New York, NY 10016. 1977. 674 pp. 15 × 23 cm. Price \$65.00.

The Chemistry of Pyrroles. By R. ALAN JONES and GERRITT P. BEAN. Academic (London), 24-28 Oval Road, London, NW1 7DX, England. 1977. 525 pp. 15 × 23 cm. Price \$41.00.

Microemulsions: Theory and Practice. Edited by LEON M. PRINCE. Academic, 111 Fifth Ave., New York, NY 10003. 1977. 179 pp. 15 × 23 cm. Price \$12.00.

Receptors and Recognition, Series A, Vol. 3. Edited by P. CUATRECASAS and M. F. GREAVES. Halsted, 605 Third Ave., New York, NY 10016. 1977. 166 pp. 15 × 24 cm. Price \$24.50.

Water, Wastes and Health in Hot Climates. Edited by RICHARD FEACHEM, MICHAEL MCGARRY, and DUNCAN MARA. Wiley, 605 Third Ave., New York, NY 10016. 1977. 399 pp. 15 × 23 cm.

Biological Bases of Psychiatric Disorders. Edited by ALAN FRAZER and ANDREW WINOKUR. Spectrum, 175-20 Wexford Terrace, Jamaica, NY 11432. 1977. 271 pp. 17 × 25 cm. Price \$15.00.

The Lymphocyte: Structure and Function, Part II. Edited by JOHN J. MARCHALONIS. Dekker, 270 Madison Ave., New York, NY 10016. 1977. 704 pp. 15 × 23 cm. Price \$37.50.

Radiotracer Techniques and Applications, Vol. 2. Edited by F. ANTHONY EVANS and MITSUO MURAMATSU. Dekker, 270 Madison Ave., New York, NY 10016. 1977. 1211 pp. 15 × 23 cm. Price \$49.75.

Current Developments in Psychopharmacology, Vol. 4. Edited by WALTER B. ESSMAN and L. VALZELLI. Spectrum, 175-20 Wexford Terrace, Jamaica, NY 11432. 1977. 295 pp. 15 × 23 cm. Price \$25.00.