REVIEWS

Assay of Drugs and Other Trace Compounds in Biological Fluids. Methodological Developments in Biochemistry. Vol. 5. Edited by ERIC REID. North-Holland, 52 Vanderbilt Ave., New York, NY 10017. 1976. 254 pp. 17 × 25 cm. Price $24.95.

This book consists of the proceedings of a "Techniques Forum" held in September 1975 at the University of Surrey, Guildford, United Kingdom. It is divided into four sections. The first section deals with advances in instrumental techniques and includes GLC–mass spectrometry, polarography, luminescence, quantitative TLC, and high-performance liquid chromatography. The second section deals with general analytical strategy and discusses chromatographic approaches, affinity methods, and ion-pair solvent extraction.

The third section deals with sample preparation and discusses logical approaches one can follow for different biological samples. The fourth section describes methodology for 16 different compounds extracted from biological fluids using the analytical instrumentation and techniques described in the preceding sections.

The first three sections of the book are written in such a general fashion that an experienced researcher may gain some useful knowledge, although a novice may not. The fourth section, however, which comprises most of the book, presents some very useful approaches to the assay of a variety of drugs from biological fluids. This section should definitely help both the novice and experienced researcher concerned with method development.

The ever increasing need to monitor drugs in biological fluids with enhanced sensitivity and specificity makes this book a very practical reference work for the analytical chemist.

Reviewed by Carl V. Puglisi
Department of Biochemistry and Drug Metabolism
Hoffmann–La Roche, Inc.
Nutley, NJ 07110

Drug Disposition and Pharmacokinetics, 2nd Ed. By STEPHEN H. CURRY. Blackwell Scientific Publications, 85 Marylebone High Street, London W1, England. 1977. 275 pp. 15 × 23 cm. Price $18.00. Distributed by Lippincott, East Washington Square, Philadelphia, PA 19105.

The book is primarily a teaching text directed to the undergraduate student. The text covers a wide range of subjects, ranging from the chemical properties of drugs to pharmacological relationships, and does not attempt to treat any one topic in depth.

This edition has similar content and format to the first edition. The only significant changes are the separation of the topic of drug–protein binding into a new chapter, expansion of the chapter on quantitative pharmacological relationships, and inclusion of a small section on nonlinear pharmacokinetics in Chapter 7. Other minor revisions have been made in other parts of the text to include more recent material.

The opening chapter deals with the chemical properties of drugs. Chapters 2–5 are concerned principally with qualitative aspects of drug absorption, distribution, metabolism, and excretion. A brief treatment of drug bioavailability is followed by sections on basic pharmacokinetics and the kinetics associated with urinary drug excretion. The pharmacokinetics chapter deals with the kinetics of the one- and two-compartment models, nonlinear kinetics, and multiple dosing. Some numerical examples are given, but no worked problems.

A chapter on drug interactions precedes an expanded discussion on relationships between drug levels and pharmacological effects. Topics include plasma level–effect relationships of chemotherapeutic agents, chlorpromazine, anticonvulsants, tricyclic antidepressants, and β-blocking agents. Dosage adjustment of antibiotics in patients with renal failure is included as an appendix. Although addressed to antibiotics in particular, the arguments presented there apply equally to all drugs whose effect is related to circulating levels and whose elimination is dependent wholly or partially on kidney function. The very brief treatment afforded this subject is probably justified in view of its extensive coverage by other authors.

In the reviewer's opinion, the book is a useful undergraduate teaching aid for students in pharmacy, pharmacology, medicine, and other related health disciplines and provides sufficient references for further indepth reading in specific subject areas.

Reviewed by Peter G. Welling
School of Pharmacy
University of Wisconsin
Madison, WI 53706

Medicinal Chemistry V. Proceedings of the 5th International Symposium on Medicinal Chemistry. Paris, July 19–22, 1976. Edited by J. MATHIEU. Elsevier Scientific, 52 Vanderbilt Ave., New York, NY 10017. 1977. 456 pp. 17 × 25 cm. Price $52.95.

This volume presents the proceedings of the Fifth International Symposium on Medicinal Chemistry, Paris, July 19–22, 1976. Four types of articles are included: main lectures on fundamental subjects by academicians, brief applied lectures by pharmaceutical industrial researchers, round-table discussion of strategy in drug research directed by Professor E. J. Ariens of Nijmegen, and some miscellaneous topics. The program of the symposium also included poster sessions organized by Professor C. G. Wermuth of Strasbourg.

The main subjects range from the fields of peptides, prodrugs, the central nervous system, cardiovascular agents, and immunology to the fields of organic synthesis, the Hansch approach to drug design, and prevention of aging.

Hypothalamic regulatory hormones and their synthetic analogs are concisely discussed with emphasis on the latest developments in research on synthetic studies and structure–activity relationships. This review was authored by numerous collaborators headed by Nobel Laureate A. V. Schally.

The section on peptides also contains reviews on the identity and mode of action of hypothalamic hypophysiotropic hormones, diverse roles of hypothalamic regulatory peptides, synthetic methodology of bioactive peptides, approaches of peptide chemistry to insulin, and synthesis in the field of 1–34 human parathyroid hormone fragments.

The section on prodrugs begins with A. J. Glazko's presentation of his personal experiences in this area over the last 25 years. This presentation reviews studies of factors affecting metabolic disposition of chloramphenicol and some of its derivatives, 4,4-diacetyldiaminodiphenylsulfone (DADDS), adenine arabinoside, araadenosine monophosphate, and prophenytoin. The second review of this section is on modulation of distribution of efficacy of prodrugs. This discussion is a very interesting review of the conception and synthesis of prodrugs on the basis of metabolic pathways and structure–activity correlation using Hansch's approach.

The third article is on long-chain esters of pipotiazine as long-acting psychotropic prodrugs; these prodrugs are supposed to assure a beneficial continuity in drug distribution at the target level with smaller doses administered by injection than those required by the oral route to achieve the same therapeutic effect. The subsequent review summarizes k_{cat} inhibitors as a new class of enzyme proinhibitors. Finally, this section concludes with an article titled Pro-drugs, Protective Groups and the Medicinal Chemist summarizing that it is possible to design prodrugs on a rational basis.

The section dealing with the central nervous system is in itself a major contribution to the literature of medicinal chemistry and pharmacology. The key article is on brain neurotransmitters and drug receptors and it contains valuable discussions of principles of methodology, the dopamine receptor, antischizophrenic agents, prediction of extrapyramidal and autonomic side effects, and a two-state model of the dopamine receptor. Thereafter, neural inhibition as a tool for research of anticonvulsants is the theme for the discussion of γ-aminobutyric acid, taurine, and glycine. The third paper of this section summarizes recent approaches in psychochemotherapy, including the biochemical classification of antidepressants and stereochemical classifications.

The next presentation is on the effects of neuroleptics on dopamine metabolism in the nigroneostriatal, mesolimbic, and mesocortical dopaminergic systems. Piracetam is characterized as a nootropic agent in the following article. It is noted that this drug does not fit any of the