N Oxidation Of Drugs Biochemistry Pharmacology And Toxicology 1st Edition

In order to avoid late-stage drug failure due to factors such as undesirable metabolic instability, toxic metabolites, drug-drug interactions, and polymorphic metabolism, an enormous amount of effort has been expended by both the pharmaceutical industry and academia towards developing more powerful techniques and screening assays to identify the metabolic profiles and enzymes involved in drug metabolism. This book presents some in-depth reviews of selected topics in drug metabolism. Among the key topics covered are: the interplay between drug transport and metabolism in oral bioavailability; the influence of genetic and epigenetic factors on drug metabolism; impact of disease on transport and metabolism; and the use of novel microdosing techniques and novel LC/MS and genomic technologies to predict the metabolic parameters and profiles of potential new drug candidates.

This book summarizes the recent advances for the understanding of circadian clock system in the regulation of drug metabolism and pharmacokinetics. Basic knowledge in the field of circadian clock and pharmacokinetics are systemically introduced to make it easier for readers to understand the entire book's contents. The rhythmic expression of DMEs (drug-metabolizing enzymes) and transporters are summarized, and the underlying mechanisms thereof (i.e., regulation by circadian oscillators) are discussed. Typically, evidence for the DME- and transporter-mediated chronopharmacokinetics, chronotoxicity and chronoefficacy are highlighted in this book.

Cytochrome P450: Structure, Mechanism, and Biochemistry, third edition is a revision of a review that summarizes the current state of research in the field of drug metabolism. The emphasis is on structure, mechanism, biochemistry, and regulation. Coverage is interdisciplinary, ranging from bioinorganic chemistry of cytochrome P450 to its relevance in human medicine. Each chapter provides an in-depth review of a given topic, but concentrates on advances of the last 10 years.

Genes are important modifiers of human response to drugs, hormones, and toxins. Patients and healthy individuals alike display significant differences in response and suffer adverse effects as a result of exposure to many therapeutic agents as well as occupational chemicals. This introductory text brings together laboratory methods and epidemiologic studies for defining the role of heredity in human drug response. This book will benefit graduate students in pharmacology, genetics, epidemiology, nursing, and public health, and will serve as a handy reference for pharmacists, epidemiologists, and physicians responsible for the delivery and administration of drugs.

Microsomes, Drug Oxidations, and Chemical Carcinogenesis, Volume I, documents the proceedings of the 4th International Symposium on Microsomes and Drug Oxidations held in Ann Arbor, July 1979. The symposium reviewed progress in the understanding of scientific and biomedical problems from a biochemical, biophysical, pharmacological, and toxicological perspective. The book contains 117 contributions made by researchers at the symposium, which are organized into three sections. The papers in Section I focus on the chemical and physical characteristics of cytochrome P-450. Section II examines the mechanisms of action of cytochrome P-450 and related enzymes. The studies in Section III deal with the influence of membrane structure and protein synthesis on electron transfer components. This book seeks to aid future progress in understanding the complexities of metabolic transformations by these versatile enzyme systems that act on physiologically important lipids as well as on a wide array of foreign substances, including drugs, anesthetics, industrial chemicals, food additives, pesticides, carcinogens, and nonnutrient dietary chemicals.

Offering a conceptual and factual presentation of the metabolism of drugs and other xenobiotics, these two volumes distinctly focus on the biochemistry, with an emphasis on xenobiotic-metabolizing enzymes, their reactions and regulations. The first volume is divided into three parts. Part One begins by introducing xenobiotics in the broad context of physiological metabolism, and continues with an overview of the processes of drug disposition and metabolism. It then goes on to summarize the macroscopic and microscopic locations of drug metabolism in animals and humans. This is followed by an introduction to the all-important issue of the consequences of drug and xenobiotic metabolism, providing an initial overview of pharmacokinetic, pharmacological and toxicological consequences. The last chapter examines drug metabolism in the context of drug research, with a focus on medicinal chemistry. The second part is a major component of the book, corresponding to the role of oxidoreductases as major agents of metabolism. Cytochromes P450 receive particular attention, namely their multiplicity, structure, catalytic mechanisms, and the various reactions they catalyze, while other oxidoreductases are also presented, such as flavin monooxygenases, monoamine oxidases and other amine oxidases, aldehyde oxidase and xanthine dehydrogenase, peroxidases, and dehydrogenases-reductases. Each drug-metabolizing enzyme or enzyme family begins with an Enzyme Identity Card summarizing its nomenclature and biochemical essentials. Part Three begins with a survey of the classification, properties and catalytic mechanism of the innumerable hydrolases known or suspected to play a role in xenobiotic metabolism. The focus then shifts to a systematic presentation of the various substrates classes, namely carboxylic esters, amides and peptides, lactams and lactones, esters of inorganic acids, alkene and arene epoxides, and some miscellaneous hydrolyzable moieties. Volume Two contains the last four parts of this work. Part 4 is devoted to the huge field of conjugation reactions, with much information being given on transferases. As in the two preceding parts, each drug-metabolizing enzyme or enzyme family begins with an Enzyme Identity Card summarizing its nomenclature and biochemical essentials. The reactions examined here include methylation, sulfation, glucuronidation, acetylation, conjugation with glutathione, while there is also a rigorous presentation of the pivotal role of xenobiotic-coenzyme A conjugates as a crossroads to various metabolic reactions. The next part examines the consequences of drug and xenobiotic metabolism in a pharmacological and toxicological perspective, with due attention paid to full activation, as is found with prodrugs, and to the worrying case of xenobiotic toxification. Parts 6 and 7 cover the inter-individual and intra-individual factors that influence drug metabolism, starting with an introduction to evolutionary events leading to species differences in the metabolism of xenobiotics and to polymorphisms within a particular species. Focusing on humans, the most relevant polymorphic drug-metabolizing enzymes are discussed, concentrating on ethnic differences and on the consequences for the pharmacokinetic behavior of affected drugs, while also introducing sex-dependent metabolic reactions. The final part introduces the mechanisms leading to increases or decreases in enzyme activities as the concept of enzyme induction via nuclear receptors and the different mechanisms of enzyme inhibition are explained. With these basics in mind, various influencing factors are discussed, including physiological and pathological conditions, as well as drugs, nutrients and environmental agents with a special focus on drug-drug interactions. With a foreword by Prof Leslie Z. Benet, the renowned biopharmaceutical scientist.

Filling a gap in the literature, leading expert editors and top international authors present the field of biooxidation from an academic

and industrial point of view, taking many examples from modern pharmaceutical research. Topics range from the application of different monooxygenases to applications in the pharmaceutical industry, making this volume of high interest not only for those working in biotechnology but also for organic synthetic chemists, among others.

A practice-oriented desktop reference for medical professionals, toxicologists and pharmaceutical researchers, this handbook provides systematic coverage of the metabolic pathways of all major classes of xenobiotics in the human body. The first part comprehensively reviews the main enzyme systems involved in biotransformation and how they are orchestrated in the body, while parts two to four cover the three main classes of xenobiotics: drugs, natural products, environmental pollutants. The part on drugs includes more than 300 substances from five major therapeutic groups (central nervous system, cardiovascular system, cancer, infection, and pain) as well as most drugs of abuse including nicotine, alcohol and "designer" drugs. Selected, well-documented case studies from the most important xenobiotics classes illustrate general principles of metabolism, making this equally useful for teaching courses on pharmacology, drug metabolism or molecular toxicology. Of particular interest, and unique to this volume is the inclusion of a wide range of additional xenobiotic compounds, including food supplements, herbal preparations, and agrochemicals.

This volume of the Handbook of Experimental Pharmacology (Concepts in Biochemical Pharmacology) will show that pharma cology has finally arrived as a true discipline in its own right, and is no longer the handmaiden of organic chemistry and physiology. Instead it is an amalgam of all the biological sciences including biochemistry, biophysical chemistry, physiology, pathology and clinical medicine. In the volumes that make up Concepts in Bio chemical Pharmacology we hope to convince Medical Schools what should now be obvious, that pharmacology is no longer that dull topic bridging the basic sciences with medicine, but is probably the most important subject in the medical curriculum. We are grateful for the advice of Dr. Byron Clark, Director of the Pharmacology-Toxicology Program at the National Institutes of Health whose support made possible much of the work described in this volume. Contents Section Four: Methods 01 Stooging the MetoholiBm 01 Drugs Subsection A. Assay 01 Drugs and Their M etoholites Chapter 22 : Basic Principles in Development of Methods for Drug Assay. B. B. BRODIE. With 2 Figures 1 1 A. Introduction . . . . . B. Principles of Developing a Method. . . . . 1 I. Section of Method of Assay . . . . . 1 II. Choice of Solvent for Extraction of Drug 2 III. Adsorption of Drugs by Glass Surfaces . . . . . 3 IV. Recoveries of Known Amounts of Compound from Biological Material. 4 V. Assessment of Sensitivity 5 VI. Assessment of Specificity 5 References. . . . . .

Standard medicinal chemistry courses and texts are organized by classes of drugs with an emphasis on descriptions of their biological and pharmacological effects. This book represents a new approach based on physical organic chemical principles and reaction mechanisms that allow the reader to extrapolate to many related classes of drug molecules. The Second Edition reflects the significant changes in the drug industry over the past decade, and includes chapter problems and other elements that make the book more useful for course instruction. New edition includes new chapter problems and exercises to help students learn, plus extensive references and illustrations Clearly presents an organic chemist's perspective of how drugs are designed and function, incorporating the extensive changes in the drug industry over the past ten years Well-respected author has published over 200 articles, earned 21 patents, and invented a drug that is under consideration for commercialization

Updated every five years, the series represents the optimal compromise between currency and a sufficient body of material for cohesive and comprehensive treatment in a monograph. Provides a quick yet thorough overview of the synthetic routines that have been used to access specific classes of therapeutic agents. Materials are organized by chemical class, and syntheses are taken back to available starting materials. Discusses disease state, rational for method of drug therapy, biological activities of each compound and preparation. Coverage also includes those generic pharmaceutical compounds not accorded clinical status. A glossary defines biological terms.

It is a natural phenomenon for all living organisms in the world to undergo different kinds of stress during their life span. Stress has become a common problem for human beings in this materialistic world. In this period, a publication of any material on stress will be helpful for the human society. The book Basic Principles and Clinical Significance of Oxidative Stress targets all aspects of oxidative stress, including principles, mechanisms, and clinical significance. This book covers four sections: Free Radicals and Oxidative Stress, Natural Compounds as Antioxidants, Antioxidants - Health and Disease, and Oxidative Stress and Therapy. Each of these sections is interwoven with the theoretical aspects and experimental techniques of basic and clinical sciences. This book will be a significant source to scientists, physicians, healthcare professionals, and students who are interested in exploring the effect of stress on human life.

The series Topics in Heterocyclic Chemistry presents critical reviews on present and future trends in the research of heterocyclic compounds. Overall the scope is to cover topics dealing with all areas within heterocyclic chemistry, both experimental and theoretical, of interest to the general heterocyclic chemistry community. The series consists of topic related volumes edited by renowned editors with contributions of experts in the field. All chapters from Topics in Heterocyclic Chemistry are published Online First with an individual DOI. In references, Topics in Heterocyclic Chemistry is abbreviated as Top Heterocycl Chem and cited as a journal.

The proceedings of a conference which aims to provide an up-to-date overview of current research in the nitric oxide field. This volume covers the biochemical and immunological aspects of the subject. Topics covered include the biological implications of nitric oxide synthesis.

This book continues to be the definitive reference on drug metabolism with an emphasis on new scientific and regulatory developments. It has been updated based on developments that have occurred in the last 5 years, with new chapters on large molecules disposition, stereo-selectivity in drug metabolism, drug transporters and metabolic activation of drugs. Some chapters have been prepared by new authors who have emerged as subject area experts in the decade that has passed since publication of the first edition.

In the ten years that have elapsed since the first edition of this book went to press, the cytochrome P450 field has completed the transition to a discipline in which structure and mechanism, even regulation and biological function, are dealt with in molecular terms. The twin forces that have propelled this remarkable progress have been the widespread adoption of molecular biological approaches and the successful application of modem structural techniques. Only a few P450 primary sequences were available in 1985, whereas hundreds of P450 sequences are now available. Site-specific mutagenesis was then mostly a proverbial gleam in the eye of the P450 community, but it is now a standard technique in

the research repertoire. The first crystal structure of a cytochrome P450 enzyme had just been solved in 1985 and appeared on the cover of the first edition. Today, the high-reso lution crystal structures of four soluble bacterial P450 enzymes are available and the race is on to develop approaches that will permit us to determine the structures of the membrane-bound forms of the enzyme. The past ten years has seen phenomenal progress let us hope that the next ten will prove equally exciting. The book is informally divided into four sections. In order to hold the book close to the advancing front of research, some of the chapter topics from the first edition have been dropped to make room for new or expanded topics.

Biological Basis of Detoxication focuses on the biological processes involved in detoxication, with emphasis on the biochemistry of the removal of xenobiotics from an organism. Topics range from the formation of toxic metabolites and compounds that are not metabolized at all to the tissue distribution and nutritional considerations, the kinetics and mechanisms of the metabolic and excretory processes, and the integration of xenobiotic metabolism in the activation and detoxication of carcinogens. Organized into 14 chapters, this book begins with an overview of the enzymatic basis for the metabolic activation of foreign compounds in forming reactive chemical intermediates. The first few chapters discuss the identification of reactive electrophiles derived from xenobiotics, intratissue distribution of activating and detoxicating enzymes, enzymatic and non-enzymatic modes of xenobiotic metabolism, and unmetabolized compounds. The middle chapters explore the biological basis of detoxication of oxygen free radicals, physiologic and kinetic aspects of the fate of xenobiotics, excretion of xenobiotics, and effects of nutrition on detoxication. The remaining chapters look at the relationships between the enzymes of detoxication and host defense mechanisms, metabolic basis of target organ toxicity, the enzymatic factor in selective toxicity, and intraindividual and interindividual variations in rates of hepatic metabolism of exogenous chemicals. Pharmacologists, toxicologists, and biochemists will find this book highly informative.

Microsomes and Drug Oxidations is a record of the proceedings of the Third International Symposium on Microsomes and Drug Oxidations, held in Berlin, Germany in July 1976. The compendium provides an overview of knowledge on the oxidative metabolism of drugs, carcinogens, and various other environmental chemicals. Topics discussed include lipid structure of liver microsomal membranes; interactions between cytochrome p-450 and nadphcytochrome p-450 reductase in the microsomal membrane; impact of drug monoxygenases in clinical pharmacology; and the manner in which oxygen participates in mixed-function oxidation reactions. Pharmacologists, toxicologists, biochemists, and researchers in the pharmaceutical industry will find the book highly insightful.

First Published in 1974, this book offers a full, comprehensive guide into Methemoglobinemia. Carefully compiled and filled with a vast repertoire of notes, pictures, and references this book serves as a useful reference for Students of Medicine, and other practitioners in their respective fields.

The Book Principles Of Organic Medicinal Chemistry Describes The Principles And Concepts Of Chemistry, Synthetic Schemes, Structure Activity Relationships, Mechanism Of Action And Clinical Uses Of Carbon Compounds In The Light Of Modern Trends. The Book Covers The Syllabai Of B. Pharmacy And M.Pharmacy Courses Of All Indian Universities.This Book Comprises Of 22 Chapters. Chapter 1 Gives An Introduction To Medicinal Chemistry, Chapter 2 Explain About The Basics On Principles Of Drug Action And Physicochemical Properties Of Organic Medicinal, Substances Are Elaborated In Chapter 3. The Concepts Of Prodrugs And Drug Metabolism Are Summarized In Chapter 4 And Chapter 5 Respectively. Chapter 6 To Chapter 22 Explains Chemistry, Properties, Mechanism Of Action, Structure Activity Relationships, Chemistry Of Newer Drugs And Clinical Uses Of Various Therapeutic Agents. At The End Of Book, A Set Of More Than 200 Essays And Short Questions And 225 Objective Questions With Answers Are St Strategically Designed.

With its roots in the last century and currently exploiting the technology of today, the science of drug metabolism has made significant contributions to our understanding of chemico-biological interactions. This book reviews past successes and failures within the science and attempts to predict new directions. Each of the chapters of this book deals with an aspect of xenobiotic metabolism which has featured prominently in the development of the discipline. The volume is testimony to the breadth and depth of research into xenobiotic metabolism and covers the chemistry and enzymology of xenobiotic metabolism, enzyme modeling and structure activity relationships, pharmacokinetics, the use of recombinant gene technology, site directed mutagenesis, transgenic and gene knockout models, new analytical techniques including capillary electrophoresis-mass spectrometry, accelerator mass spectrometry, high throughput analysis toxicological assessment, pharmacogenetics, drug development and therapeutics. With new chemical entities constantly emerging and requiring evaluation, the concepts and techniques developed in this book will help focus future lines of investigation and help set priorities in the next millennium.

Nicotine is an alkaloid which is present, together with a number of minor alkaloids, in tobacco and a wide variety of other plants. The introduction of tobacco as a therapeutic agent against diverse pathologi cal and physiological conditions resulted in the widespread exposure of people to nicotine, and the subsequent recognition of the pleasurable effects of tobacco consumption. Tobacco may be used for pleasure by smoking it in pipes, cigars or cigarettes or by taking it in unsmoked form as oral and nasal tobacco snuff. Nonsmokers are exposed to nico tine through plant material and side-stream tobacco smoke. This means that in humans nicotine is always utilized in the presence of a very large variety of natural compounds or their pyrolysis products, depend ing on the route of administration. These compounds may modify the absorption, distribution, metabolism and excretion of nicotine and hence alter the duration of its pharmacological action. In recent years the use of nicotine in chewing gum and cutaneous patches has been developed as an aid to smoking cessation. The toxic properties of nicotine make it useful as an insecticide, which has led to its use in agriculture and horticulture. It has also recently been recog nized that tobacco consumption may be beneficial in the prevention of

Parkinson's disease or in alleviating inflammatory bowel syndrome. The above observations have continued to stimulate research into the mode of action of this relatively simple molecule.

The vast majority of drugs are organic molecular entities. A clear understanding of the organic chemistry of drug degradation is essential to maintaining the stability, efficacy, and safety of a drug product throughout its shelf-life. During analytical method development, stability testing, and pharmaceutical manufacturing troubleshooting activities, one of the frequently occurring and usually challenging events would be the identification of drug degradants and understanding of drug degradation mechanisms and pathways. This book is written by a veteran of the pharmaceutical industry who has first-hand experience in drug design and development, drug degradation mechanism studies, analytical development, and manufacturing process troubleshooting and improvement. The author discusses various degradation pathways with an emphasis on the mechanisms of the underlying organic chemistry, which should aid greatly in the efforts of degradant identification, formulation development, analytical development, and manufacturing process improvement. Organic reactions that are significant in drug degradation will first be reviewed and then illustrated by examples of drug degradation reported in the literature. The author brings the book to a close with a final chapter dedicated to the strategy for rapid elucidation of drug degradants with regard to the current regulatory requirements and guidelines. One chapter that should be given special attention is Chapter 3, Oxidative Degradation. Oxidative degradation is one of the most common degradation pathways but perhaps the most complex one. This chapter employs more than sixty drug degradation case studies with in-depth discussion in regard to their unique degradation pathways. With the increasing regulatory requirements on the quality and safety of pharmaceutical products, in particular with regard to drug impurities and degradants, the book will be an invaluable resource for pharmaceutical and analytical scientists who engage in formulation development, analytical development, stability studies, degradant identification, and support of manufacturing process improvement. In addition, it will also be helpful to scientists engaged in drug discovery and development as well as in drug metabolism studies.

Divided into five major parts, the two volumes of this ready reference cover the tailoring of theoretical methods for biochemical computations, as well as the many kinds of biomolecules, reaction and transition state elucidation, conformational flexibility determination, and drug design. Throughout, the chapters gradually build up from introductory level to comprehensive reviews of the latest research, and include all important compound classes, such as DNA, RNA, enzymes, vitamins, and heterocyclic compounds. The result is in-depth and vital knowledge for both readers already working in the field as well as those entering it. Includes contributions by Prof. Ada Yonath (Nobel Prize in Chemistry 2009) and Prof. Jerome Karle (Nobel Prize in Chemistry 1985).

Drug Metabolism and Pharmacokinetics Quick Guide covers a number of aspects of drug assessment at drug discovery and development stages, topics such as pharmacokinetics, absorption, metabolism, enzyme kinetics, drug transporters, drug interactions, drug-like properties, assays and in silico calculations. It covers key concepts, with useful tables on physiological parameters (eg. blood flow to organs in x-species, expression and localization of enzymes and transporters), chemical structure, nomenclature, and moieties leading to bioactivation (with examples). Overall it includes a number of key topics useful at the drug discovery stage, which would serve as a quick reference with several examples from the literature to illustrate the concept.

N-Oxidation of DrugsBiochemistry, pharmacology, toxicologySpringer Science & Business MediaN-Oxidation of DrugsHeterocyclic N-OxidesSpringer

Nitric oxide is a highly potent regulatory molecule with great pharmaceutical potential. This handbook fills a real gap in combining the chemistry of nitric oxide releasing substances with their practical applications in biology and drug design. It covers all classes of nitric oxide donors, from organic nitrates to nitroso compounds, guanidines and metal-NO complexes. In addition to a detailed treatment of the chemistry of NO donors, numerous examples of successful diagnostic and pharmacological applications are discussed, as well as further therapeutic targets for these substances.

Microsomes, Drug Oxidations, and Chemical Carcinogenesis, Volume II, documents the proceedings of the 4th International Symposium on Microsomes and Drug Oxidations held in Ann Arbor, July 1979. The symposium reviewed progress in the understanding of scientific and biomedical problems from a biochemical, biophysical, pharmacological, and toxicological perspective. Volume I contained 117 contributions made by researchers at the symposium, which were organized into three sections (Sections I-III). This second volume contains 122 contributions, divided into four sections (Sections IV-VII). The papers on Section IV examine the metabolic fate of oxygenated compounds. Section V provides studies on microsomal enzymes and lipid metabolism. Section VI includes papers on microsomal enzymes and toxicity of foreign compounds. Section VII covers microsomal enzymes and chemical mutagenesis and carcinogenesis. This book seeks to aid future progress in understanding the complexities of metabolic transformations by these versatile enzyme systems that act on physiologically important lipids as well as on a wide array of foreign substances, including drugs, anesthetics, industrial chemicals, food additives, pesticides, carcinogens, and nonnutrient dietary chemicals.

Enzymatic Basis of Detoxication, Volume I focuses on the catalytic mechanisms and physiological expression of the enzymes that are involved in the detoxication of foreign compounds. The book explores foreign compound metabolism at the level of what specific enzymes can do. This book is organized into three sections and comprised of 17 chapters. The discussion begins with an overview of detoxication and covers both catalytic and non-catalytic removal of foreign substances, along with the general properties of the enzymes that are active in detoxication. The reader is then introduced to the physiological aspects of detoxication, paying particular attention to the kinetic aspects of metabolism and elimination of foreign compounds in animals, human genetic variation in detoxication enzymes, and how such enzymes are induced. The next section focuses on mixed function oxygenase systems and includes chapters on cytochrome P-450 and the detoxication reactions it catalyzes. The book also considers other oxidation-reduction

systems, with reference to alcohol dehydrogenase, aldehyde reductase, aldehyde oxidizing enzymes, ketone reductases, xanthine oxidase and aldehyde oxidase, glutathione peroxidase, and superoxide dismutases. The final chapter is devoted to monoamine oxidase, its properties, substrate specificity, inhibitors, kinetics and mechanism, and multiple forms. Pharmacologists, toxicologists, and biochemists will find this book extremely helpful.

Metabolic Basis of Detoxication: Metabolism of Functional Groups considers the possible fates of the relatively circumscribed number of functional groups that xenobiotics bear. An understanding of the possible reactions, and the chemical and biological factors influencing them, will contribute to the overall predictability of the fate of "real" molecules. This approach attempts to knit together the understanding of metabolic pathways with that of the enzymes that catalyze the specific steps. The book contains 18 chapters and begins with a discussion of the biological oxidation of carbon atoms. This is followed by separate chapters on the metabolism of halogenated aliphatic hydrocarbons, aryl halides, heterocyclic rings, alcohols, aldehydes, and ketones. Subsequent chapters cover oxidative processes such as metabolic dealkylations and biological oxidation at nitrogen centers; the reduction of nitro and azo compounds and tertiary amine N-oxides; the oxidation, alkylation, acylation, and glycosylation of mercaptans; epoxide metabolism; and conjugation of phenols. The book aims to inform and interest the pharmacologist and toxicologist concerning the biochemical aspects and to orient the biochemist to the pharmacological insights required in dealing with the metabolism of xenobiotics. Surpassing the 1976 book by Testa and Jenner, Drug Metabolism: Chemical and Biochemical Aspects (Dekker), this informative, up-to-date text includes the following features, unavailable elsewhere: First in a set of books to provide a comprehensive coverage of drug metabolism; Opening chapter provides a general introduction to the complete set of books; Other chapters cover reaction mechanisms, catalytic cycles, regio- and stereoselectivities, types of substrates, reactivity of intermediates, and drug-enzyme interactions; Extensive detailed diagrams of reaction pathways and chemical structures * First in a set of books providing a comprehensive coverage of drug metabolism * Opening chapter provides a general introduction to the complete set of books * Other chapters cover reaction mechanisms, catalytic cycles, regio and stereoselectivities, types of substrates, reactivity of intermediates and drug-enzyme interactions * Extensive detailed diagrams of reaction pathways and chemical structures