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""Modeling: An Introduction"" ""References""; ""Physiologically Based Pharmacokinetic Modeling""; ""INTRODUCTION""; ""BIOLOGICAL BASIS OF PHYSIOLOGICAL PHARMACOKINETICS""; ""DEVELOPMENT OF MODELS""; ""CHOICE OF COMPARTMENTS""; ""BASIC MASS BALANCES""; ""Mass Balance: Blood Pool""; ""Mass Balance: Tissue Region i""; ""SIMPLIFICATIONS OF MASS BALANCES""; ""Examples""; ""DISCUSSION""; ""FUTURE RESEARCH NEEDS""; ""References""; ""PART III GENERALIZATIONS AND EXTRAPOLATIONS ""; ""Allometry: Body Size Constraints in Animal Design""; ""INTRODUCTION""; ""SIZE, DESIGN, AND PHARMACOKINETICS""
 ""Aerobic Energetics of Muscle In Vivo"" ""Conflict of Physiological and Chronological Time""; ""Species Extrapolations, Physiological Time, and Pharmacokinetics""; ""CONCLUSIONS""; ""SUMMARY""; ""References""; ""Prediction of In Vivo Parameters of Drug Metabolism and Distribution from In Vitro Studies""; ""IN VITRO PREDICTION OF IN VIVO DRUG METABOLISM""; ""IN VITRO PREDICTION OF IN VIVO DRUG BINDING AND DISTRIBUTION""; ""CONCLUSION""; ""References""; ""Dose, Species, and Route Extrapolation: General Aspects""; ""DIFFERENT PROBLEMS AND OBJECTIVES, DIFFERENT MODELS""; ""Different Mechanisms""
 ""GENERAL PHYSIOLOGICALLY BASED PHARMACOKINETIC MODELS""
 ""Simplification of Models""; ""Rates of Formation of Complexes""; ""Diffusional Barriers and Modified Fick's Law""; ""Simple PB-PK Models""; ""Basic Parameters f_u and R ""; ""Nonlinear Kinetics and Lost Concepts""; ""INTERFACE BETWEEN PB-PK MODELS AND CLEARANCES""; ""Organ Availabilities (F), Extraction Ratios (E), and Clearances (CL)""; ""Physiologically Based Linear Compartmental Pharmacokinetic Models""; ""Validity of the Assumption of Virtual Steady State""; ""Calculation of Other Compartmental Model Parameters""
 ""Approximations of Terminal Half-Lives"" ""Approximate Time Required to Approach Steady State""; ""LINEAR PHARMACOKINETIC SYSTEMS""; ""Total Body Clearance""; ""Importance of the Unbound Concentration of Substances""; ""Classification of Organs; Routes of Administration""; ""Non-First-Pass, Nonelimination Organs""; ""Range of Maximum and Minimum Unbound Concentrations in Nonelimination Organs and Repetitive Administration""; ""Non-First-Pass, Elimination Organs""; ""FIRST-PASS, NONELIMINATION ORGANS""; ""First-Pass, Elimination Organs""; ""ROUTE-TO-ROUTE EXTRAPOLATION""; ""Lungs and Skin Administration""

Sommario/riassunto

Pharmacokinetics, the study of the movement of chemicals within the body, is a vital tool in assessing the risk of exposure to environmental chemicals. This book--a collection of papers authored by experts in academia, industry, and government--reviews the progress of the risk-assessment process and discusses the role of pharmacokinetic principles in evaluating risk. In addition, the authors discuss software packages used to analyze data and to build models simulating biological phenomena. A summary chapter provides a view of trends in pharmacokinetic modeling and notes some prospective fields of study.