



Tracer Kinetics in Biomedical Research From Data to Model

By David Foster

Springer. Hardcover. Condition: New. 456 pages. Dimensions: 9.0in. x 6.0in. x 1.4in. The use of mathematical modeling techniques in biomedical research is playing an increasingly important role in the understanding of the pathophysiology of disease processes. This includes not only understanding mechanisms of physiological processes, but also diagnosis and treatment. In addition, its introduction in the study of genomics and proteomics is key in understanding the functional characteristics of gene expression and protein assembly and secretion. Finally, with the increasing complexity and associated cost of drug development, modeling techniques are being used to streamline the process. This book is designed to give the reader the mathematical and statistical information necessary to design tracer kinetic studies, to use noncompartmental methodologies and/or to develop multicompartmental models to interpret the data. The book starts with a review of fundamentals of radioactive and stable isotope tracer kinetics and then proceeds with a description of the noncompartmental and multicompartmental modeling methodologies to study systems in the steady state. The focus is on understanding the basic assumptions inherent in the methodologies and the underlying mathematics and statistics, on discussing how to assess how good a model is and on giving some hints on how better to design...



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