

Basic Enzyme Kinetics

by T. Keleti (English translation by P. Friedrich)

Akademiai Kiado; Budapest, 1986

xvii + 421 pages. £33.50

This book is a compendium of kinetic equations which are applicable to the analysis of enzyme reactions. It comes from the pen of an author who has been active in different aspects of enzymology and who has, therefore, a wide experience of the algebraic tools required.

The volume is divided into three chapters: principles of thermodynamics, chemical kinetics and enzyme kinetics. The last of these is nearly 300 pages. This lack of division into chapters, of the main topic of the book, makes it rather unwieldy.

The publisher's comments on the back cover states: "Basic Enzyme Kinetics is the only book among the many in current use that treats in appropriate detail chemical kinetics and thermodynamics.....". I would dispute that on two grounds. First, thermodynamics is not treated in any detail at all (15 pages) and secondly some other books on enzyme kinetics deal with thermodynamic problems quite adequately. Similarly, the comments that ".....the applicable experimental methods and their limitations are discussed....." are overstating the case. This is not a book to refer to for methods.

This reviewer was somewhat taken aback when he realized that there was not one real experimental

result in the whole volume. All progress curves and derived plots are simulated; there is no evidence anywhere that the author deals with real data. This is exacerbated by the fact that there are no references in the text. This means that on the rare occasions when a specific enzyme is mentioned one has to guess as to which of the references at the end of the volume is concerned. The same applies to the difficulties of finding which reference deals with some of the derivations in greater detail.

The inclusion of all the main topics in one chapter does cause problems. Equilibrium binding, Scatchard plots and cooperativity are all treated under the heading of enzyme kinetics. The mathematical asides are sometimes pretentious and usually not as clear as in a good algebra book. I certainly would keep the book away from undergraduates; it would put them off enzymology for life. However, non-specialist research workers, who often have difficulties in finding algebraic solutions to their manifold problems in enzyme kinetics, will find this book very useful. I should think that the volume will find a valued place as a work of reference in the libraries of Biochemistry Departments.

H. Gutfreund

Enzyme kinetics involves the measurement of the rate at which chemical reactions that are catalyzed by enzymes occur. Knowledge about the kinetics of an enzyme can reveal useful information about its catalytic mechanism, role in metabolism, factors that impact its activity, and mechanisms of inhibition. This article will cover the basic principles of enzyme kinetics, including the reaction equation, rate of reaction and maximal velocity (V_{max}) and Michaelis Constant (K_m). Rate of reaction. Enzyme Kinetics: Principles and Methods. Hans Bisswanger Copyright © 2002 WILEY-VCH Verlag GmbH, Weinheim ISBN: 3-527-30343-X. X Contents. A basic limit for the association rate constants for the enzyme substrate is the quotient from the catalytic constant k_{cat} and Michaelis constant K_m (see Section 2.2). $k_{cat}/K_m \approx k_1/k_2$. Enzyme-substrate complex. Products. In this lab you are going to study the kinetics of an enzyme called acid phosphatase. Figure 1. Basic components of an enzyme catalyzed reaction. (abbreviated: AcPase). It occurs in most living things and is generally associated with the.