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References and Further Reading; 4 Protein-Ligand Binding Equilibria; 4.1 The Equilibrium Dissociation Constant,  $K(d)$ ; 4.2 The Kinetic Approach to Equilibrium; 4.3 Binding Measurements at Equilibrium; 4.4 Graphic Analysis of Equilibrium Ligand Binding Data; 4.5 Equilibrium Binding with Ligand Depletion (Tight Binding Interactions) 4.6 Competition Among Ligands for a Common Binding Site 4.7 Experimental Methods for Measuring Ligand Binding; 4.8 Summary; References and Further Reading; 5 Kinetics of Single-Substrate Enzyme Reactions; 5.1 The Time Course of Enzymatic Reactions; 5.2 Effects of Substrate Concentration on Velocity; 5.3 The Rapid Equilibrium Model of Enzyme Kinetics; 5.4 The Steady State Model of Enzyme Kinetics; 5.5 The Significance of  $k(cat)$  and  $K(m)$ ; 5.6 Experimental Measurement of  $k(cat)$  and  $K(m)$ ; 5.7 Other Linear Transformations of Enzyme Kinetic Data; 5.8 Measurements at Low Substrate Concentrations 5.9 Deviations from Hyperbolic Kinetics 5.10 Transient State Kinetic Measurements; 5.11 Summary; References and Further Reading; 6 Chemical Mechanisms in Enzyme Catalysis; 6.1 Substrate-Active Site Complementarity; 6.2 Rate Enhancement Through Transition State Stabilization; 6.3 Chemical Mechanisms for Transition State Stabilization; 6.4 The Serine Proteases: An Illustrative Example; 6.5 Enzymatic Reaction Nomenclature; 6.6 Summary; References and Further Reading; 7 Experimental Measures of Enzyme Activity; 7.1 Initial Velocity Measurements; 7.2 Detection Methods 7.3 Separation Methods in Enzyme Assays 7.4 Factors Affecting the Velocity of Enzymatic Reactions; 7.5 Reporting Enzyme Activity Data; 7.6 Enzyme Stability; 7.7 Summary; References and Further Reading; 8 Reversible Inhibitors; 8.1 Equilibrium Treatment of Reversible Inhibition; 8.2 Modes of Reversible Inhibition; 8.3 Graphic Determination of Inhibitor Type; 8.4 Dose-Response Curves of Enzyme Inhibition; 8.5 Mutually Exclusive Binding of Two Inhibitors; 8.6 Structure-Activity Relationships and Inhibitor Design; 8.7 Summary; References and Further Reading; 9 Tight Binding Inhibitors 9.1 Identifying Tight Binding Inhibition

## Sommario/riassunto

Fully updated and expanded-a solid foundation for understanding experimental enzymology. This practical, up-to-date survey is designed for a broad spectrum of biological and chemical scientists who are beginning to delve into modern enzymology. Enzymes, Second Edition explains the structural complexities of proteins and enzymes and the mechanisms by which enzymes perform their catalytic functions. The book provides illustrative examples from the contemporary literature to guide the reader through concepts and data analysis procedures. Clear, well-written descriptions sim