Comprehensive Enzyme Kinetics

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This book provides a systematic introduction to the field of enzyme-catalyzed reactions. The content develops from monosubstrate to bisubstrate to trisubstrate reactions, including nonhyperbolic rate equations and allosteric and cooperative effects. Because it outlines the subject in such a way that it builds from less complicated to more demanding kinetic models, it can be used as a textbook for students of biochemistry and molecular biology. The author stresses the importance of graphic representation of kinetic models by frequent use of such mathematical models in the form double-reciprocal plots. In addition, special attention is paid to isotope exchange studies, kinetic isotope effects, and the statistical evaluation of initial rate and ligand binding data.

This textbook is directed at graduate students in biochemistry, chemistry and life sciences, for advanced courses in enzyme kinetics, enzymology and enzyme chemistry. For this reason, the whole book is organized in a systematic and scholarly fashion. It is unlikely that the student will be expected to cover everything in the text, but in a later career they may find it an invaluable reference for topics that are needed in practice. The concepts, definitions and detailed algebra of enzyme kinetics are laid out in accurate detail. For that reason, this textbook can also serve as a handbook for research workers in the field of enzyme kinetics. The research worker will find it a useful source, which can be used for solving the daily experimental problems in the laboratory.

The contents are divided into the following chapters: 1. Introduction, 2. Chemical kinetics, 3. Kinetics of monosubstrate reactions, 4. Derivation of rate equations, 5. Linear inhibition, 6. Hyperbolic and parabolic inhibition, 7. Enzyme activation, 8. Kinetics of rapid equilibrium bisubstrate reactions, 9. Steady-state kinetics of bisubstrate reactions, 10. Kinetic analysis of bisubstrate mechanisms, 11. Substrate inhibition and mixed dead--end and product inhibition, 12. Kinetics of trisubstrate reactions, 13. Cooperative and allosteric effects, 14. The pH dependence of enzyme catalysis, 15. Effects of temperature on enzyme reactions, 16. Isotope exchange, 17. Solvent and kinetic isotope effects, 18. Statistical analysis of initial and binding data, and Subject index.

The scope and the quality of this book is best described by endorsements of H. J. Fromm and R. L. Schowen, printed on the back cover of the book.

Richard L. Schowen, Professor of Chemistry, Molecular Biosciences and Pharmaceutical Chemistry at the University of Kansas in Lawrence, said: »As scientific attention turns, in the post-genomic era, again to the properties of proteins, and particularly to their preeminent role as catalysts, professor Leskovac's book, *Comprehensive Enzyme Kinetics*, will have to be on every bookshelf. It will, however, rarely find itself on the shelf, but much more in the hands of researchers who will daily deploy in the laboratory its wealth of useful information. Prepared under the eye of W. Wallace Cleland, the demiurge of enzyme kinetics, this *magnum opus* earns its title of »comprehensive«. The systematic organization of the volume, which somehow manages completeness in just over 400 pages, leads the reader to a target subject easily. The clarity of exposition will be as welcome to the experienced kineticist as it will be to the beginner. This volume is a singular achievement«.

Herbert J. Fromm, Distinguished Professor at Iowa State University in Ames said: »*Comprehensive Enzyme Kinetics* is an excellent addition to the enzyme kinetics literature. It touches on all of the topics in the various areas of kinetics that might be of interest to the enzymologist. It will make a fine classroom reference text«.

More information on the book can be found at the web site of the publisher: http://www.wkap.nl/, where you can also order the book at a discount price.

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