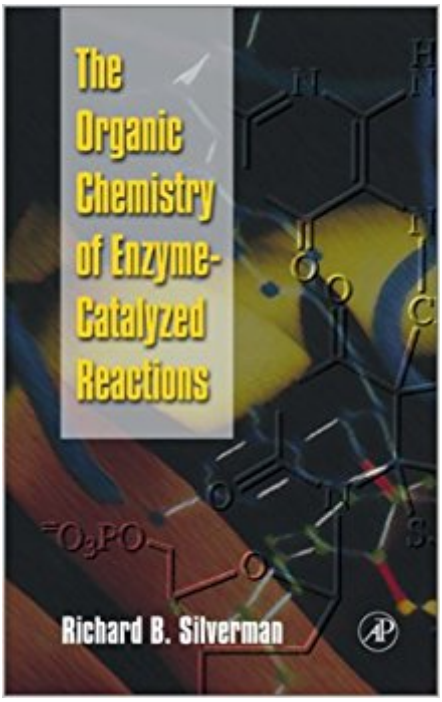
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The Organic Chemistry Of Enzyme-Catalyzed Reactions



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Synopsis

Written for advanced undergraduate and graduate students as well as professionals in organicand medicinal chemistry and biochemistry, this unique text illuminates the "black box" ofenzyme-catalyzed reactions by showing how enzymes are simply highly efficient organicchemists. Enzyme-catalyzed reactions are essential for the design of enzyme inhibitors in thepharmaceutical and agricultural industries, and of growing importance for process developmentin the chemical and biotechnology industries. Following a general introduction to the role ofenzymes as catalysts, each chapter describes the organic reaction mechanisms that are used byenzymes to catalyze a particular family of organic transformations. The compilation includes avast number of drawings to illustrate structures and mechanisms, and focuses on one or twoexamples of enzymes that catalyze the particular chemistry for that transformation. The OrganicChemistry of Enzyme-Catalyzed Reactions is not a book on enzymes, but rather the generalmechanisms used by enzymes. Extensive references refer to the many experiments that havehelped to elucidate enzyme mechanisms. Chemical model studies as an aid in mechanisticstudies are also discussed, as are the design of haptens and the generation of catalytic antibodies("designer enzymes"). Problem sets and solutions are provided to check the reader’s understanding of the principles described. * Shows how enzyme-catalyzed reactions are simplyefficient organic reaction* Emphasizes the connection between organic reaction mechanisms and enzyme mechanisms* Explains how enzymes can accelerate the rates of chemical reactions with high specificity* Uses selected enzymes to demonstrate general mechanisms of enzyme-catalyzed reaction* Illustrated with a vast array of clearly drawn structures, schemes, and figures* Includes an extensive bibliography on enzyme mechanisms * Describes approaches to the design of enzyme inhibitors* Covers catalytic antibody design and mechanisms* Provides problem sets and solutions for each chapter* Written in an informal and engaging style

Book Information

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Customer Reviews

"Whether you are teaching, learning, or trying to inhibit an enzyme, you will find this book invaluable."--JOURNAL OF MEDICINAL CHEMISTRY, 2000, Vol. 43, No 13"Silverman's newest contribution will serve as an outstanding text and reference on the reaction mechanisms of enzymes. ...it may easily serve as the foundation for an advanced course on contemporary topics of substrate recognition, activation, and catalytic turnover. His treatment of the topic should also appeal to a broad range of organic, medicinal, and biological chemists who desire an up-to-date and succinct overview of the field. Silverman should be congratulated for publishing yet another book of high quality and significance. This newest contribution to enzymology should quickly become the standard for mechanistic studies. Ample figures and schemes enliven each section, and all aspects fo teh text have been composed with great precision. Silverman simultaneously elucidates both the experimental approaches and results that constitute much of enzymology."--Steven Rokita, University of Maryland; JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, June 14, 2000, Vol. 122, No. 33."Successfully highlights some of the most sophisticated advances of the past decade while still covering the basic tenets of enzymology. Silverman should be congratulated for publishing yet another book of high quality and significance. The newest contribution to enzymology should quicly become the standard for mechanistic studies. Ample figures and schemes enliven each section, and all aspects of the text have beeen composed with great precision. Silverman simultaneously elucidates both the experimental approaches and the results that constitute much of enzymology."--JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, June 14, 2000, Vol. 122, No. 33.

KEY FEATURES Shows how enzyme-catalyzed reactions are simply efficient organic reactions Emphasizes the connection between organic reaction mechanisms and enzyme mechanisms Explains how enzymes can accelerate the rates of chemical reactions with high specificity Uses selected enzymes to demonstrate general mechanisms of enzyme-catalyzed reactions Compiles the latest information about molecular mechanisms of enzyme reactions Illustrated with a vast array

of clearly drawn structures, schemes, and figures Includes an extensive bibliography on enzyme mechanisms Describes approaches to the design of enzyme inhibitors Covers catalytic antibody design and mechanisms Provides problem sets and solutions for each chapter

The index for this book .... For example, there are a fair number of examples of the epoxidation reaction, but not a single pointer toward that in the index of the book. And much the same thing for other types of reactions.It would also be nice if there was a more clear transfer between basic organic principles and then biological applications.He does do a good job showing this is some cases (i.e., the benzoin condensation), but a few more parallel examples would have been very useful.

Brilliant book, both for understanding the fundamentals and for scientists working on a problem...If you want a quick glance for solutions to problems at hand without having to dig through literature which, at times, can get unwieldy, this is the book...you will definitely enjoy the book, no matter what stage of your career you are at...

Are you an aspiring chemist or biochemist wasting your 20’s studying the chemical reactions involved in a biological pathway? If so, buy this book. Alright, >$100 is a lot of money for a grad student or postdoc, but seriously you won’t mind eating cup-o-noodle for an entire month once you begin to absorb the knowledge from this book. Tasty, tasty knowledge. It’s full of figures, great references, and is easy to read. This book is never on my shelve, it has a permanent home next to my computer. I use it that often.

This book is an excellent resource for undergraduate and graduate students studying enzyme chemistry and organic mechanisms. Prof. Silverman does a fine job of giving many different examples of enzyme mechanisms. By not focusing totally on one kind of enzyme or catalysis, he succeeds in painting a broad picture for the reader, while not sacrificing content. The only drawback to this edition is the large amount of typographical errors that appear throughout. Perhaps better editing is in order for future editions.

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