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In nature, enzymes are able to catalyze reaction sequences and cascades without the need for purification and isolation of intermediates. This is one essential advantage compared to the classical chemical multi-step reactions. In multi-step enzyme catalysis, researchers copy this elegant method to make biocatalysis more effective and elegant. By combining enzymatic and synthetic organic steps, the use of multi-enzyme complexes and other techniques open the door for hitherto unknown reactions.

This first comprehensive coverage of the topic provides a complete overview, covering such topics as chemoenzymatic synthesis, microbial production of DNA building blocks, asymmetric transformations by coupled enzymes and much more.

From the Contents:

- Multimodular Syntheses
- Modifying the Glycosilation Pattern in Microorganisms
- Chemoenzymatic Routes to Enantiomerically Pure Amines and Amino Acids
- Asymmetric Transformations by Couples Enzymes and Metal Catalysis
- Engineering Novel Biosynthetic Pathways to Produce New Chemical Compounds
- Synthesis of Intermediates of Pharmaceutical Interest
- Oxidizing Enzymes into Multi-Enzyme Biotransformation Processes
- Host-Intrinsic Enzyme Activities in Recombinant Whole-Cells Catalyzed Processes
- Microbial Production of DNA Building Blocks
- Enzyme Initiation of Asymmetric Cascade-Reactions
- The Biotransformations Approach for Multi-Step Processes
- Chemoenzymatic Synthesis of Homogeneous Glycoprotein
- Aldolases Catalyzed C-C Bond Formation in the Core of Multi-Step Processes

Of great interest to all those working in the pharmaceutical and fine chemical industries.

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