

1. Record Nr.	UNINA9910144323603321
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Titolo	Hydrolases in organic synthesis [[electronic resource] ] : regio- and stereoselective biotransformations // Uwe T. Bornscheuer and Romas J. Kazlauskas
Pubbl/distr/stampa	Weinheim, : Wiley-VCH Chichester, : John Wiley, c2006
ISBN	1-280-85420-0 9786610854202 3-527-60754-4 3-527-60712-9
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (369 p.)
Classificazione	35.74
Altri autori (Persone)	KazlauskasR. J <1956-> (Romas J.)
Disciplina	547.2
Soggetti	Catalysis Hydrolases Organic compounds - Synthesis Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Hydrolases in Organic Synthesis; Preface for the 2(nd) edition; Preface for the 1(st) edition; Acknowledgments; Contents; 1 Introduction; 2 Designing Enantioselective Reactions; 2.1 Kinetic Resolutions; 2.1.1 Recycling and Sequential Kinetic Resolutions; 2.1.2 Dynamic Kinetic Resolutions; 2.1.2.1 Introduction; 2.1.2.2 Racemization by Protonation/Deprotonation; 2.1.2.3 Racemization by Addition/Elimination; 2.1.2.4 Racemization by Nucleophilic Substitution; 2.1.2.5 Racemization by Oxidation/Reduction; 2.1.2.6 Related Strategies; 2.2 Asymmetric Syntheses 3 Choosing Reaction Media: Water and Organic Solvents 3.1 Hydrolysis in Water; 3.2 Transesterifications and Condensations in Organic Solvents; 3.2.1 Increasing the Catalytic Activity in Organic Solvents; 3.2.1.1 Choosing the Best Organic Solvent for High Activity; 3.2.2 Increasing the Enantioselectivity in Organic Solvents; 3.2.3 Water Content and Water Activity; 3.3 Other Reaction Media; 3.3.1 Ionic

Liquids; 3.3.2 Reverse Micelles; 3.3.3 Supercritical Fluids; 3.4 Immobilization; 3.4.1 Introduction; 3.4.1.1 Increasing the Surface Area to Increase Catalytic Activity  
4 Protein Sources and Optimization of Biocatalyst Performance  
4.1 Accessing Biodiversity; 4.2 Creating Improved Biocatalysts; 4.2.1 Directed Evolution; 4.2.1.1 Methods to Create Mutant Libraries; 4.2.1.2 Assay Systems; 4.2.1.3 Selected Examples; 4.2.2 Focused Directed Evolution; 4.3 Catalytic Promiscuity in Hydrolases; 4.3.1 Reactions Involving Functional Group Analogs; 4.3.1.1 Perhydrolases; 4.3.2 Aldol and Michael additions Catalyzed by Hydrolases; 4.3.2.1 Aldol Additions; 4.3.2.2 Michael-Type Additions; 4.3.3 Modifications to Introduce New Reactivity in Hydrolases  
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5.1.7.1 Requirements for a Suitable Assay; 5.1.7.2 How to Distinguish Between Lipase, Esterase, and Protease; 5.2 Survey of Enantioselective Lipase-Catalyzed Reactions; 5.2.1 Alcohols; 5.2.1.1 Secondary Alcohols; 5.2.1.2 Primary Alcohols; 5.2.1.3 Other Alcohols, Amines, and Alcohol Analogs; 5.2.2 Carboxylic Acids; 5.2.2.1 General Considerations; 5.2.2.2 Carboxylic Acids with a Stereocenter at the  $\alpha$ -Position; 5.2.2.3 Carboxylic Acids with a Stereocenter at the  $\beta$ -Position; 5.2.2.4 Other Carboxylic Acids; 5.2.2.5 Double Enantioselection; 5.2.2.6 Anhydrides  
5.2.3 Lactones

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### Sommario/riassunto

From reviews to the first edition: "Bornscheuer and Kazlauskas have set out, and succeeded, in producing a definitive manual on hydrolytic enzymes (especially lipases, esterases, and proteases) for organic chemists. This is quite simply the best book of its type and can be unreservedly recommended to organic chemists who have an interest in using hydrolytic enzymes in synthesis." (Nicholas J. Turner, University of Edinburgh) "The book is an indispensable source of information on the use of hydrolases in organic synthesis. The subject matter is very well set out, and the chapter

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