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Nota di contenuto	PRACTICAL METHODS FOR BIOCATALYSIS AND BIOTRANSFORMATIONS 2; Contents; List of Contributors; Abbreviations; 1 Biocatalysis in the Fine Chemical and Pharmaceutical Industries; 1.1 Introduction; 1.2 Biotrans Outsourcing - AstraZeneca; 1.3 Biotrans Trends - Lonza; 1.4 Biocatalysis in the Pharma Environment; 1.5 Industrial Use of Hydrolases; 1.6 Industrial Biooxidation and Reduction; 1.7 Industrial Application of Transaminases - Cambrex; 1.8 Biocatalyst Discovery and Improvement; 1.9 From Pathway Engineering to Synthetic Biology 1.10 Prioritization of Future Biocatalysis and Synthetic Biology Needs1. 11 Concluding Remarks; Acknowledgements; References; 2 Reductive Amination; 2.1 ?-Transaminases - Useful Biocatalysts for Chiral Amine Synthesis; 2.2 Preparative Scale Production of a Bulky-Bulky Chiral Amine Using an Engineered Transaminase; 2.3 Synthesis of Optically Pure Amines Employing ?-Transaminases; 2.4 A Fast, Sensitive Assay and Scale-Up of ?-Transaminase Catalysed Reactions; 2.5 Asymmetric

Synthesis of L-3-Hydroxyadamantylglycine Using Branched Chain Aminotransferase
2.6 Asymmetric Reduction of Aryl Imines Using Candida parapsilosis ATCC 73303 Enoate Reductases for Reduction of Electron Deficient Alkenes; 3.1 Asymmetric Bioreduction of Activated Alkenes Using Ene-Reductases from the Old Yellow Enzyme Family; 3.2 Efficient Baker's Yeast Mediated Reduction with Substrate Feeding Product Removal (SFPR) Technology: Synthesis of (S)-2-Alkoxy-3-Aryl-1-Propanols; 3.3 Asymmetric Reduction of (4S)-(+)-Carvone Catalyzed by Enoate Reductases (ERs) Expressed by Non-Conventional Yeast (NCY) Whole Cells
3.4 Preparation of Enantiomerically Pure Citronellal Enantiomers Using Alkene Reductases3.5 Highly Enantiomeric Hydrogenation of C-C Double Bond of Methylated N-Phenyl and N-Phenylalkylmaleimides by Aspergillus fumigatus; 4 Industrial Carbonyl Reduction; 4.1 Bioreduction Using Immobilized Carbonyl Reductase Technology; 4.2 Preparative Ketoreductase-Catalyzed Kinetic Resolution of a Racemic Aldehyde; 4.3 Enzymatic Reduction of 2,6-dichloro-3-fluoro-acetophenone to Produce (S)-1-(2,6-dichloro-3-fluorophenyl)ethanol
4.4 Preparative Scale Production of Poorly Soluble Chiral Alcohol Intermediate for Montelukast5 Regio- and Stereoselective Hydroxylation; 5.1 Engineering of an Amycolatopsis orientalis P450 Compactin Hydroxylase into a Pravastatin Synthase by Changing the Stereospecificity of the Enzyme; 5.2 Recombinant Human Cytochrome P450 Enzymes Expressed in Escherichia coli as Whole Cell Biocatalysts: Preparative Synthesis of Oxidized Metabolites of an mGlu5 Receptor Antagonist; 5.3 Alpha-Keto Biooxidation Using Cunninghamella echinulata (DSM 63356)
5.4 Aromatic Hydroxylation: Preparation of 3,4-Dihydroxyphenylacetic Acid

Sommario/riassunto

Biocatalysts are increasingly used by chemists engaged in fine chemical synthesis within both industry and academia. Today, there exists a huge choice of high-tech enzymes and whole cell biocatalysts, which add enormously to the repertoire of synthetic possibilities. Practical Methods for Biocatalysis and Biotransformations 2 is a ""how-to"" guide that focuses on the practical applications of enzymes and strains of microorganisms that are readily obtained or derived from culture collections. The sources of starting materials and reagents, hints, tips and safety advice (where appropria