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Nota di contenuto	CONTENTS; Editors /; Contributors /; Preface /; SECTION 1 _____; ISOLATION AND SCREENING FOR SECONDARY METABOLITES AND ENZYMES /; Isolation; 1. New Approaches to Microbial Isolation /; 2. Selectie Isolation of Actinobacteria /; Identity/Dereplication; 3. Taxonomic Characterization of Prokaryotic Microorganisms /; Screening; 4. Enzymes from Extreme Environments /; 5. Cell-Based Screening Methods for Anti-Infective Compounds /; 6. Metabolomics for the Discovery of Novel Compounds /; 7 Strategies for Accessing Microbial Secondary Metabolites / Section II _____ FERMENTATION AND CELL CULTURE /; 8. Miniaturization of Fermentations /; 9. Solid-Phase Fermentation: Aerobic and Anaerobic /; 10. Bacterial Cultivation for Production of Proteins and Other Biological Products /; 11. Heterologous Protein Expression in Yeasts and Filamentous Fungi; 12. Mammalian Cell Culture for Biopharmaceutical Production /; 13. Manufacture of

Mammalian Cell Biopharmaceuticals /; 14. Plant Cell Culture /; 15. Insect Cell Culture /; Section III; GENETICS, STRAIN IMPROVEMENT, AND RECOMBINANT PROTEINS /

16. Genetic Engineering of Corynebacteria /17. Genetic Manipulation of Clostridium /; 18. Genetic Manipulation of Myxobacteria /; 19. Strain Improvement of Escherichia coli To Enhance Recombinant Protein Production /; 20. Genetic Engineering Tools for Saccharomyces cerevisiae /; 21 Protein Expression in Nonconventional Yeasts /; 22. Genetics, Genetic Manipulation, and Approaches to Strain Improvement of Filamentous Fungi /; 23. Genetic Manipulation of Mammalian Cells for Protein Expression /; Section IV

_____ ; GENETIC ENGINEERING OF SECONDARY METABOLITE SYNTHESIS

24. Glycosylation of Secondary Metabolites To Produce Novel Compounds /25. Metabolic Engineering of Escherichia coli for the Production of a Precursor to Artemisinin, an Antimalarial Drug /; 26. Heterologous Production of Polyketides in Streptomyces coelicolor and Escherichia coli /; 27. Genetic Engineering of Acidic Lipopeptide Antibiotics /; 28. Genetic Engineering To Regulate Production of Secondary Metabolites in Streptomyces clavuligerus /; 29. Genetic Engineering of Myxobacterial Natural Product Biosynthetic Genes /; Section V

_____ TRIAL ENZYMES, BIOCATALYSIS, AND ENZYME EVOLUTION /30. Tools for Enzyme Discovery /; 31. Enzyme Engineering: Combining Computational Approaches with Directed Evolution /; 32. Enzyme Engineering by Directed Evolution; 33. Industrial Applications of Enzymes as Catalysts /; 34. Biomass-Conserving Enzymes and Their Bioenergy Applications /; 35. The Use of Enzymes for Nonaqueous Organic Transformations /; 36. Enzyme Promiscuity and Evolution of New Protein Functions; 37. Enzyme Production in Escherichia coli; 38. Bioprocess Development /; Section VI

_____ MICROBIAL FUELS (BIOFUELS) AND FINE CHEMICALS /

Sommario/riassunto

The third edition reviews the newest techniques, approaches, and options in the use of microorganisms and other cell culture systems for the manufacture of pharmaceuticals, industrial enzymes and proteins, foods and beverages, fuels and fine chemicals, and other products. Readers will find a rich array of methods and discussions of productive microbial processes, with means for improving the organism, the process, and the product.