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Nota di contenuto	Preface -- Part 1 Cytochrome P450 History -- 1 Pioneers in the Early Years of Cytochrome P450 Research -- 2 Fifty Years of Progress in Drug Metabolism and Toxicology: What Do We Still Need to Know About Cytochrome P450 Enzymes? -- 3 Fifty Years of Cytochrome P450 Research: Examples of What We Know and Don't Know -- Part 2 Structure, Function, and Practical Applications of P450 -- 4 Cytochrome P450 Dynamics -- 5 Structural and Functional Diversity of Cytochrome P450 -- 6 Oxygenation of Non native Substrates Using a Malfunction State of Cytochrome P450s -- 7 Plant Cytochrome P450s in Triterpenoid Biosynthesis: Diversity and Application to Combinatorial Biosynthesis -- 8 Mammalian and Bacterial Cytochromes P450 Involved in Steroid Hydroxylation: Regulation of Catalysis and Selectivity and Potential Applications -- 9 Neurosteroids: Regional Steroidogenesis -- 10 Whole Cell-Dependent Biosynthesis of Drug Metabolites Using

Genetically Engineered Budding Yeast -- 11 Metabolic Diversity and Cytochromes P450 of Fungi -- 12 Metabolic Engineering of Flower Colour Pathways Using Cytochromes P450 -- Part 3 Gene Regulation of P450 -- 13 Aryl Hydrocarbon Receptor Suppresses Cecal Carcinogenesis -- 14 Epidermal Growth Factor Receptor: The Phenobarbital Receptor That Elicits CAR Activation Signal for P450 Induction -- 15 Steroidogenic Cytochrome P450 Gene CYP11A1: Functions and Regulation -- 16 Cooperative Regulation of Expression of Cytochrome P450 Enzymes by Aryl Hydrocarbon Receptor and Vitamin D Receptor -- Part 4 Drug Metabolism -- 17 Species, Ethnic and Individual Differences in Human Drug-Metabolizing Cytochrome P450 Enzymes -- 18 Cytochrome P450-Dependent Change in UDP-Glucuronosyltransferase Function and Its Reverse Regulation -- 19 Control of Xeno/Endobiotics-Metabolizing Cytochrome P450s by Micro RNAs -- 20 The Pharmacogenomics of Cytochrome P450s: From Molecular to Clinical Application -- 21 Cytochrome P450 Polymorphisms of Clinical Importance -- BM Epilogue -- Index.

Sommario/riassunto

This book encompasses major progress and future directions in cytochrome P450 (P450) research. Included are contributions by pioneers in the discovery of P450, with chapters on the molecular and functional properties of P450 and cutting-edge applications knowledge from various fields. P450 research has its roots in metabolism, but the true beginning was in 1962 with the publication by Tsuneo Omura and Ryo Sato in *The Journal of Biological Chemistry* on their discovery of the cytochrome. Following this groundbreaking study, over the last half-century, research has revealed that many forms of P450 exist in animals, plants, and microorganisms. P450 research has expanded into many different fields including medicine, agriculture, and biotechnology, and has drawn the attention of industries for its bioengineering applications, such as drug development and creation of the “blue rose”. Also, research on nuclear receptors, which has grown out of research on the regulatory mechanisms of P450 genes, has become an important area in biology, medical science, pharmacology, and clinical medicine—for example, with recent developments in personalized medicines. This book will draw readers into the important and exciting world of P450 and will encourage young students and scientists in P450 research to continue expanding the field via new approaches.
