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Nota di contenuto	A Genomic View of the Catabolism of Aromatic Compounds in Pseudomonas -- A Genomic View of the Catabolism of Short Chain Alkanes -- Aerobic Degradation of Aromatic Hydrocarbons -- Aerobic Degradation of Aromatic Hydrocarbons: Enzyme Structures and Catalytic Mechanisms -- Aerobic Degradation of Chloroaromatics -- Aerobic Degradation of Gasoline Ether Oxygenates -- Aerobic Degradation of Halogenated Aliphatics -- Biochemistry and Molecular Biology of Methane Monooxygenase -- Biosynthesis, Insertion and Function of Fe-S Cofactors -- Biosynthesis, Insertion and Function of Flavin Cofactors -- Biosynthesis, Insertion and Function of haem-iron Prosthetic Groups -- Computational Framework for Integration of Lipidomics Data into Metabolic Pathways -- Degradation of Dimethylsulfoniopropionate (DMSP) and Dimethylsulfide (DMS) -- Degradation of Rubber/Polyisoprene -- Diversity and Common Principles in Enzymatic Activation of Hydrocarbons: An Introduction --

Energetic and Other Quantitative Aspects of Microbial Hydrocarbon Utilization: An Introduction: -- Enzymes for Aerobic Degradation of Alkanes in Bacteria -- Enzymes for Aerobic Degradation of Alkanes in Yeasts -- Evolution of New Catabolic Functions Through Gene Assembly by Mobile Genetic Elements -- Experimental Evolution of Novel Regulatory Activities in Response to Hydrocarbons and Related Chemicals -- Functional Gene Diversity, Biogeography, Dynamics -- Genetic Features and Regulation of n-Alkane Metabolism in Bacteria -- Genetic Features and Regulation of n-Alkane Metabolism in Yeasts -- Genetic Features of Methylophiles -- Genetics and Functional Genomics of Aerobic Degradation of Hydrocarbons: An Introduction -- Genetics and Molecular Features of Bacterial Dimethylsulfoniopropionate (DMSP) and Dimethylsulfide (DMS) Transformations -- Genetics of Biphenyl Biodegradation and Co-Metabolism of PCBs -- Genetics of Rubber/Polyisoprene Degradation -- Genetics and Ecology of Isoprene Degradation -- Genomic View of Mycobacterial High Molecular Weight Polycyclic Aromatic Hydrocarbon Degradation -- Global Aerobic Degradation of Hydrocarbons in Aquatic Systems -- Global Aerobic Degradation of Hydrocarbons in Terrestrial Systems -- Global Consequences of the Microbial Production and Consumption of Inorganic and Organic Sulfur Compounds -- Key Features of Aerobic Hydrocarbon Biodegrader Genomes -- Lipid Degradation - Lipid Cycles -- Lipolytic Enzymes from Bacteria -- Lipolytic Enzymes from Yeasts -- Metabolism of Steroids -- Oxidative Inactivation of Ring-Cleavage Extradiol Dioxygenases: Mechanism and Ferredoxin-Mediated Reactivation -- Pathways for the Degradation of Fatty Acids in Bacteria -- Phylogenomics of Aerobic Bacterial Degradation of Aromatics -- Physiology and Biochemistry of the Aerobic Methane Oxidizing Bacteria -- Potential for Microbial Interventions to Reduce Global Warming -- Rational Construction of Bacterial Strains with New/Improved Catabolic Capabilities for the Efficient Breakdown of Environmental Pollutants -- Regulation of the Degradation of Fatty Acids in Bacteria -- Regulation of the Degradation of Fatty Acids in Yeast -- Stereochemistry of Hydrocarbon-transforming Enzyme Reactions -- Structure-Function Relationships and Engineering of Haloalkane Dehalogenases -- Transcriptional Control of the TOL Plasmid Pathways.-.

Sommario/riassunto

In this book international experts discuss the state-of-the-art in the biological degradation of hydrocarbons to meet remedial or disposal goals. The work focuses on practical applications, often on globally important scales including the remediation of some of the world's largest crude oil spills. Other related chapters discuss important implications of microbial transformation of hydrocarbons, including treatment of high fat processing wastes, impacts of microbial biodegradation activity on industrial processes, and the implications of microbial oil degradation in relation to modern oil extraction processes like hydraulic fracturing of shales and extraction of oil sands.
