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Titolo	Cellular Ecophysiology of Microbe: Hydrocarbon and Lipid Interactions [[electronic resource] /] / edited by Tino Krell
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ISBN	3-319-50542-4
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (80 illus., 55 illus. in color. eReference.)
Collana	Handbook of Hydrocarbon and Lipid Microbiology
Disciplina	660.62
Soggetti	Microbiology Environmental engineering Biotechnology Biochemistry Microbial ecology Hydrophobic and Hydrophilic Interactions Microbial Interactions Hydrocarbons
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Adaptation to Varying Substrate Concentrations and Mixtures -- Amphiphilic Lipids, Signaling Molecules and Quorum Sensing -- Bacterial Signal Transduction Processes Based on Acetylation -- Biochemistry of Methylation of DNA -- Biofilm Development at Interfaces between Hydrophobic Organic Compounds and Water -- Biofilm Stress Responses Associated to Aromatic Hydrocarbons -- Bioinformatic, Molecular and Genetic Tools for Exploring Genome-wide Responses to Hydrocarbons -- Causes and Biochemistry of DNA Damage by Alkylation -- Chemotaxis to Hydrocarbons -- Cis-Trans Isomerase of Unsaturated Fatty Acids: An Immediate Bacterial Adaptive Mechanism to Cope with Emerging Membrane Perturbation Caused by Toxic Hydrocarbons -- DNA Methylation in Eukaryotes: Regulation and Function -- DNA Methylation in Prokaryotes: Regulation and Function -- Extrusion Pumps for Hydrocarbons: An Efficient Evolutionary Strategy to Confer Resistance to Hydrocarbons -- Fatty Acids as

Mediators of Intercellular Signalling -- Feast: Choking on Acetyl-CoA, the Glyoxylate Shunt, and Acetyl-CoA-Driven Metabolism -- Fungi as Transport Vectors for Contaminants and Contaminant-Degrading Bacteria -- Genetics of Sensing, Accessing, and Exploiting Hydrocarbons -- Genomic Response of *Pseudomonas putida* to Toluene -- Hydrophobic Modifications of Biomolecules: An Introduction -- Kinetics and Physiology at Vanishingly Small Substrate Concentrations -- Lipidation of Other Biomolecules and Functions -- Lipids as Signalling Molecules in Eukaryotes -- Matrix-Hydrophobic Compound Interactions -- Membrane Adaptations to Low Water Two-Phase Bioprocess Systems -- Membrane Composition and Modifications in Response to Aromatic Hydrocarbons in Gram Negative Bacteria -- Microbiology of Oil Fly Larvae -- Microorganism-Hydrophobic Compound Interactions -- Mutagenic Consequences of Alkylation -- Nitrogen Fixation and Hydrocarbon-Oxidizing Bacteria -- One-Component Systems that Regulate the Expression of Degradation Pathways for Aromatic Compounds -- Problems of Feast or Famine: An Introduction: -- Problems of Hydrophobicity/Bioavailability: An Introduction -- Problems of Solventogenicity, Solvent Tolerance: An Introduction -- Production and Roles of Biosurfactants and Bioemulsifiers in Accessing Hydrophobic Substrates -- Protein Alkylation -- Protein Lipidation in Eukaryotes: Biochemistry and Function -- Protein Lipidation in Prokaryotes: Biochemistry and Function -- Protein Methylation in Bacteria -- Sensing, Signaling and Uptake: An Introduction -- Strategies to Increase Bioavailability and Uptake of Hydrocarbons -- Substrate Transport -- Surface Properties and Cellular Energetics of Bacteria in Response to the Presence of Hydrocarbons -- The Family of Two-Component Systems that Regulate Hydrocarbon Degradation Pathways -- The Potential of Hydrocarbon Chemotaxis to Increase Bioavailability and Biodegradation Efficiency -- Toxicity of Hydrocarbons to Microorganisms -- Transcriptional Regulation of Hydrocarbon Efflux Pump Expression in Bacteria -- Ultrastructural Insights into Microbial Life at the Hydrocarbon:Aqueous Environment Interface -- Uptake and Assimilation of Hydrophobic Substrates by the Oleaginous Yeast *Yarrowia lipolytica* -- Water-Hydrophobic Compound Interactions with the Microbial Cell. .

Sommario/riassunto

This book assembles concisely written chapters by world-leaders in the field summarizing recent advances in understanding microbial responses to hydrocarbons. Subjects treated include mechanisms of sensing, hydrocarbon tolerance and degradation as well as an overview on hydrophobic modification of biomolecules. Other chapters are dedicated to issues related to the reduced bioavailability of hydrocarbons, which differentiates this class of compounds from many others, but which of central importance to understand the ecophysiological consequences. This book should be standard literature in any laboratory working in this area.
