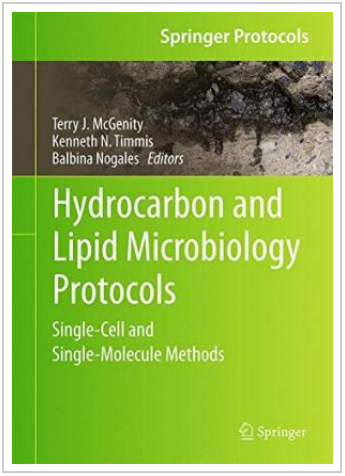

Hydrocarbon and Lipid Microbiology Protocols : Single-Cell and Single-Molecule Methods

By Terry J. McGenity

Springer-Verlag Gmbh Apr 2016, 2016. Buch. Condition: Neu. Neuware - This Volume presents relevant single-cell and single-molecule approaches in the study of microbes producing and utilizing hydrocarbons and lipids. While generically applicable for all microorganisms, the approaches described are, wherever possible, adapted to the field of study of hydrocarbon and lipid microbiology. The methods include basic procedures for isolating single cells by means of microfluidics and flow cytometry, and their cultivation in arrays as pure clones; for isolating, amplifying and sequencing single-cell genomes and transcriptomes; and for analysing single-cell metabolomes by means of Raman spectroscopy. Single-molecule approaches include the use of protein:fluorescent dye fusions for protein localization and methods for the production of cell division protostructures and lipid monolayers. Methods for the functional analysis of single cells include detection of metabolically active (protein-synthesizing) cells in environmental samples by bioorthogonal non-canonical amino acid tagging, Raman spectroscopy combined with stable isotope labelling and fluorescent in situ hybridisation, and visualization of single cells participating in gene transfer activity. Lastly, protocols are presented for single-cell biotechnological applications, including biofuel production. Hydrocarbon and Lipid Microbiology Protocols There are tens of thousands of structurally different hydrocarbons, hydrocarbon derivatives and lipids, and a wide array of these...

Reviews

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