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Titolo	One - carbon feedstocks for sustainable bioproduction / / edited by An-Ping Zeng and Nico J. Claassens
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ISBN	3-031-06854-8
Descrizione fisica	1 online resource (417 pages)
Collana	Advances in Biochemical Engineering/Biotechnology ; ; v.180
Disciplina	660.6
Soggetti	Sustainable development Biomass chemicals
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Obituary: In memory of Dr. Arren Bar-Even Introduction: The future belongs to the one-carbons Exploiting aerobic carboxydotrophic bacteria for industrial biotechnology Process engineering aspects of C1-conversionSystems biology on acetogenic bacteria for utilizing C1 feedstocks Systems metabolic engineering of methanotrophic bacteria for biological conversion of methane to value-added compounds Engineering synthetic methylotrophs by harnessing the power of metabolic engineering-guided adaptive laboratory evolution Bioconversion of methanol by synthetic methylotrophy Aerobic growth on methanol using the RuMP cycle Empower C1 Combination of electrochemistry and biology to convert C1 compounds Extracellular electron powered microbial CO2 upgrading Understanding and engineering glycine cleavage system and its reversion for C1 biosynthesis Engineering the reductive glycine pathway - A promising synthetic metabolism approach for C1-assimilationBiosynthesis based on one-carbon mixotrophy Conversion of carbon monoxide to chemicals by mixed culture approaches
Sommario/riassunto	This book offers a comprehensive review of the latest developments, challenges and trends in C1-based (one-carbon based) bioproduction, and it presents an authoritative account of one-carbon compounds as promising alternative microbial feedstocks. The book starts with a perspective on the future of C1 compounds as alternative feedstocks

for microbial growth, and their vital role in the establishment of a sustainable circular carbon economy, followed by several chapters in which expert contributors discuss about the recent strategies and address key challenges regarding one or more C1 feedstocks. The book covers topics such as acetogenic production from C1 feedstocks, aerobic carboxydotrophic bacteria potential in industrial biotechnology, bioconversion of methane to value-added compounds, combination of electrochemistry and biology to convert C1 compounds, and bioprocesses based on C1-mixotrophy. Particular attention is given to the current metabolic engineering, systems biology, and synthetic biology strategies applied in this field.