Special Issue

Metabolic Engineering for the Bioconversion and Biorefinery of C1 Compounds

Message from the Guest Editor

The bioconversion and biorefining of one-carbon (C1) compounds (CO2, CO/syngas, methane, methanol, and formic acid) using microorganisms is envisioned as an attractive approach for the sustainable biomanufacturing of a wide range of chemicals, fuels, and materials. This offers the potential to develop biorefinery routes that are decoupled from the use of sugars and, ultimately, of biomass. Thus, further progress in engineering native C1-utilizing microorganisms and providing the conventional chassis cell factories with synthetic C1-utilizing capacities are essential for translating laboratory-scale developments into industrial applications. We aim at promoting fundamental knowledge on microbial cells able to naturally assimilate C1 compounds, as well as translational research in synthetic and systems biology and the metabolic engineering of microbial cell factories (either native C1-utilizing or with synthetic C1-utilizing capabilities) for the efficient bioconversion of C1 compounds. This includes the development and optimization of enzymes, pathways, chassis cells, and systems for the improved conversion of C1 compounds into biofuels, biochemicals, biomaterials, and biomass.

Guest Editor

Dr. Pau Ferrer

Department of Chemical, Biological and Environmental Engineering, Universitat Autònoma de Barcelona, 08193 Bellaterra, Catalonia, Spain

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Microorganisms
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
microorganisms@mdpi.com

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"Microorganism" merges the idea of the very small with the idea of the evolving reproducing organism is a unifying principle for the discipline of microbiology. Our journal recognizes the broadly diverse yet connected nature of microorganisms and provides an advanced publishing forum for original articles from scientists involved in high-quality basic and applied research on any prokaryotic or eukaryotic microorganism, and for research on the ecology, genomics and evolution of microbial communities as well as that exploring cultured microorganisms in the laboratory.

Editor-in-Chief

Dr. Nico Jehmlich
Department of Molecular Toxicology, UFZ-Helmholtz Centre for Environmental Research, 04318 Leipzig, Germany

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