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Biological-Electrode Interface as the Nexus of Breakthroughs towards Viability of Microbial Electrochemical Technologies

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Message from the Guest Editors

Microbial electrochemical technologies (MET) can valorize carbon waste to such value-added products by employing microbial catalysts that are able to interact and exchange electrons with synthetic electrodes. These living biocatalysts either oxidize organics and donate the metabolically generated electrons to an anode (e.g., microbial fuel cells, electro fermentation) or take up electrons from a cathode to reduce carbon dioxide (microbial electrosynthesis) or organics (EF) to higher-value chemicals. The biological–electrode interface is key to achieving higher productivity and energy efficiency. This invokes the need for more research on electroactive microorganisms and biofilms, molecular and electron transfer mechanisms, synthetic biology, advanced electrode materials synthesis, reactor design, and reactor operation optimization.

This multidisciplinary Special Issue aims to showcase recent trends in microbial electrosynthesis, electro fermentation, and microbial electrogenesis processes. We favor contributions in the form of original research, but review articles will also be considered.

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Message from the Editor-in-Chief

"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.

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