Special Issue

Microbial Metabolism Regulation in Engineered Production Strains

Message from the Guest Editors

Redefining microbial metabolism and controlling it represent key challenges in developing modified strains for industrial biotechnology. Genetic modifications can establish new biosynthetic pathways or enhance existing ones; however, cellular metabolism is strictly regulated by networks that have evolved to prioritize growth and survival over product synthesis. Consequently, these genetically modified strains must choose between growth and production, which at the industrial level can mean the difference between a profitable strain and one that is discarded. However, redirecting carbon flow toward a specific product also imposes a metabolic burden, which can reduce cellular fitness, leading to instability over time. Therefore, regulation of microbial metabolism represents another main challenge in creating modified production strains for industrial biotechnology. All these challenges constitute the core of this Special Issue applied to different microbial products, pathways, or processes.

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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.

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