



Special Issue Reprint

Genetic Engineering in Microbial Biotechnology

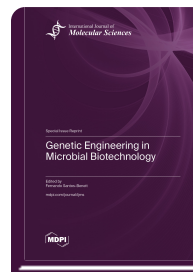
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This Reprint brings together contributions from the Special Issue on Genetic Engineering in Microbial Biotechnology, originally published in the *International Journal of Molecular Sciences*. Under the guest editorship of Dr. Fernando Santos-Beneit, the collection addresses the key intersection of gene-based technologies and microbial systems, exploring how microorganisms may be harnessed for sustainable innovation. Featuring both original research and authoritative reviews, the Reprint encompasses topics such as white, red, yellow, green, and other branches of biotechnology; bioinformatic analyses; metabolic engineering; microbial genetic circuits; degradation of synthetic polymers; biosynthesis of bioproducts; enzyme engineering; antimicrobial resistance; and novel secondary metabolites. Collectively, these studies seek to confront pressing challenges of modern society—such as the climate crisis, environmental pollution, and health threats—by leveraging the smallest forms of life. Each paper in the Reprint exemplifies rigorous experimental design, computational insight, and strategic engineering aimed at translational or applied outcomes. Whether enhancing bioproduct yield, developing biodegradable polymers, or elucidating novel genetic pathways, the contributions illustrate the compelling promise of genetically engineered microorganisms in illuminating new biotechnological possibilities.

The Reprint offers both researchers and practitioners a curated resource of cutting-edge developments and future directions in microbial genetic engineering, providing a foundation for further progress toward a more sustainable and innovative bioeconomy.



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