



microorganisms



Special Issue Reprint

Transcriptional Regulation in Bacteria

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In the current post-genomic era, in which the full extent of the genes that are encoded on microbial genomes is known, the goal of research is to elucidate the entire transcriptional mechanism by which microorganisms express genes through transcriptional regulation with transcriptional regulatory factors. The genome sequence of microorganisms reveals their gene set and the set of transcriptional regulators that regulate the expression of those genes, providing a complete overview of the transcriptional regulatory mechanisms in microorganisms. Before genome sequencing was available, the analysis of the transcriptional regulation of transcriptional regulators occurred at the gene level, whereas it is now possible to analyze this at a genome-wide scale. To understand the intrinsic transcriptional regulatory mechanisms, it is necessary to understand that transcriptional regulation forms a hierarchical network structure, as well as the distinction between direct regulation and indirect effects.

This Special Issue of *Microorganisms*, titled “Transcriptional Regulation in Bacteria”, includes ten original articles, providing new information about the transcriptional regulation of various functions in a wide variety of microorganisms. The analyses of transcriptional regulation revealed not only the molecular mechanisms of transcriptional regulation, but also the functional network of genes, leading to the elucidation of new biological functions of these microorganisms.



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