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Horizontal Gene Transfer in Bacteria

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Message from the Guest Editor

Bacterial genomes are highly dynamic. Unlike eukaryotes, which evolve by gradual mutation, bacteria have the ability to acquire entire sets of genes through horizontal gene transfer mechanisms, which accelerates their diversification, adaptation and survival in changing environments. Analysis of an increasing number of the bacterial genome sequences helped realize the importance of gene transfer in the bacterial world. The newly acquired genetic information may encode new metabolic properties, including pathogenesis, environmental adaptation and symbiotic lifestyle, as well as resistance to antimicrobials, now recognized as one of the biggest threats to public health. In addition, gene transfer shapes the genetic dynamics of bacterial populations within microbiota and, consequently, affects the interactive equilibrium they establish with their plant or animal host.

This Special Issue in *Genes* on “Horizontal Gene Transfer in Bacteria” will address the mechanisms by which bacterial species acquire new genetic material and associated functions, providing an overview of recent developments in specialized research topics and critical perspectives on upcoming challenges.



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Special Issue



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Message from the Editor-in-Chief

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