

Special Issue

Bacterial Chemoreceptors and Chemosensory Pathways

Message from the Guest Editors

The analysis of bacterial genomes has revealed that more than half of the sequenced bacteria possess chemosensory signaling genes. Chemosensory pathways are activated by the recognition of specific signals by chemoreceptors, which are primarily responsible for modulating chemotactic responses, either chemoattraction or chemorepellence. However, a growing body of experimental evidence is revealing that chemoreceptors also carry out alternative cellular functions. Chemoreceptors form a highly diverse protein superfamily that differs in size, topology, domain composition, cellular location, function, or the mechanism of action. Remarkably, contrary to the widespread misconception within the scientific community, not all chemoreceptors are activated by the direct binding of signals but by the recognition of chemoeffector-loaded periplasmic binding proteins or respond to growth under specific conditions.

The goal of this Special Issue is to further expand our knowledge of chemoreceptor and chemosensory pathway function, the molecular mechanisms that modulate their activity, as well as the selective pressures that have shaped their evolution.

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