

Special Issue

Bacterial Communication: The Quorum Sensing Paradigm

Message from the Guest Editor

Communication is the key to all living organisms' survival, growth, and development. Cell communication in bacteria is dependent on the production and response of autoinducers. Autoinducers are small pheromone biochemical molecules used by bacteria to communicate and release via the process of quorum sensing. Quorum sensing is cell communication where the quorum sensing molecules (autoinducers) are excreted into the extracellular environment and used for communicating with other cells. Quorum sensing signals bind to receptors and regulate gene expression and physiological activities through a chain of cascade reactions such as the formation of biofilms, enzyme secretion, virulence factor expression, and so on. Gram-negative quorum-sensing bacteria use small molecules as autoinducers, and two types of cognate receptors detect these autoinducers—cytoplasmic transcription factors or transmembrane two-component histidine sensor kinases. Gram-positive bacteria typically use oligopeptides as autoinducers, and the partner receptors are transmembrane two-component histidine sensor kinases¹⁵.

Guest Editor

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