

QUORUM SENSING

MOLECULAR MECHANISM AND BIOTECHNOLOGICAL APPLICATION

EDITED BY **GIUSEPPINA TOMMONARO**

Quorum sensing (QS) is a process of bacterial cooperative behavior that has an effect on gene regulation. This cell-to-cell communication system involves the production of signaling molecules according to cell density and growth stage. Virulence, the ability to infest a habitat and cause disease, is also governed by such communication signals.

Quorum Sensing: Molecular Mechanism and Biotechnological Application collects, describes, and summarizes the most interesting results obtained from experts working on QS mechanisms. It contributes to the understanding of the molecular basis that regulates this mechanism and describes new findings in fields of application. This volume describes the QS mechanism from its molecular basis to medical applications, such as antibiotic therapy and involvement of QS in pathologies. This reference also analyzes its potential use in biotechnological applications such as food packaging, drug delivery, and marine biofilm. The broad scope of this title will be of significant use to researchers across several fields with interest in QS, including microbiologists, chemists, biochemists, and ecologists.

Key Features

- Describes QS mechanisms from their molecular basis to clinical application
- Spans several fields in relation to QS, including microbiology, chemistry, biochemistry, and ecology
- Considers QS as an approach to the discovery of new antibiotics
- Looks at QS as a means to understand the microbial world and explores the use of bacteria and their products in biotechnological applications
- Summarizes key results on QS mechanisms' molecular basis and fields of application

About the Editor

Giuseppina Tommonaro, biologist, is a highly experienced researcher based at one of Italy's leading research institutions: the Institute of Biomolecular Chemistry, at the National Research Council. Her research activity concerns the extraction, isolation, and chemical characterization of secondary metabolites biologically active from natural sources. Marine organisms, in particular sponges, plants, and marine microorganisms, are objects of her studies. In particular, she is involved in the isolation and characterization of natural products produced from sponge- and plant-associated microorganisms, with particular attention to the metabolites involved in the QS mechanism.

Dr. Tommonaro was involved in the chemical characterization of polysaccharides and biopolymers extracted from bacteria and vegetables. During her research activity, she has developed a sound experience in the isolation and structural elucidation of natural compounds, as well as in the chemical derivation of bioactive compounds to improve the biological activity.



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