

Cell-Cell Communication System (Quorum Sensing), possible application in Fast Bacterial Detection

Sistema de comunicación célula-célula (Quorum Sensing), posible aplicación en la detección rápida de bacterias

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Abstract

Bacterial diagnostic Techniques normally used in Clinical Bacteriology spent such a long time for generate needed reports about detection of infection, specimen isolation, identification and susceptibility tests that it is not infrequent that the answer to an antibiotic treatment is provided first by the proper patient 48 hours after received the treatment. For this reason, full reports in less than 48 hours had been considered as a challenge for bacterial Diagnostic. Many Fast Bacterial techniques and Systems had been developed in order to overcome this limitation and interesting and useful results had been obtained. Signals derived from bacterial cells are used for detection, direct cells properly or practically any expression of cell metabolism. In any case bacterial growth is needed for amplification of the correspondent signal.

Using a chemical communication process called quorum sensing, bacteria converse among themselves to count their numbers and to get the population to act in unison. A chemical signal called autoinducer-2 (AI-2), originating from the same gene in all bacteria, is released outside the cell to announce the cell's presence.

Considering the criteria of production of autoinducers and its relationship with bacterial growth phase and a patent that evidence the possibility for efficient detection of autoinducers (AI-2), it is analyzed the potential utilization of this signal as predictor of bacterial growth.

Keywords: cell-cell communication, quorum sensing, fast bacterial detection