

P85

**Evidence of Quorum Sensing in Gram (-) Bacteria: Detection
of N-Acyl Homoserine Lactone Autoinducers by
Thin-layer Chromatography**

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Quorum sensing is the regulation of gene expression in response to their cell-population density. Quorum sensing bacteria produce and release chemical signal molecules called autoinducers. Autoinduction (Quorum sensing) relies upon the interaction of the autoinducer with a transcriptional activator protein to couple gene expression with cell population density. These signal molecules diffuse from bacterial cells and accumulate in the environment as a function of cell growth.

In Gram-negative bacteria, most autoinducers belong to the family of N-acyl homoserine lactones. We assay for these signals that couples separation by thin-layer chromatography with detection using *Agrobacterium tumefaciens* harboring *lacZ* fused to a gene that is regulated by autoinduction. The assay is particularly well suited for screening many samples simultaneously. Using this assay, we will show that several organisms, some not previously examined, produce one or more distinguishable compounds with autoinducers activity. Moreover, in previously untested bacteria, the assay predicted in some cases the production of known acyl-HSLs and in others, the existence of autoinducers with novel structures.