

Examining effects of the DNA regulator Lrp on quorum sensing gene expression in *Pseudomonas aeruginosa*

Pseudomonas aeruginosa is an opportunistic human pathogen that has the capacity to express multiple virulence factors that are regulated through an extensive quorum sensing network. Three major quorum sensing systems have been identified in *Pseudomonas* species: the acyl homoserine lactones of *las* and *rhl*, and the *Pseudomonas* Quinolone Signal (PQS). We seek to investigate the involvement of a global regulator, Lrp with the expression of these three networks. Specifically, we will compare expression levels of *las*, *rhl*, and *pqs* in wild type *P. aeruginosa* (MPAO1) with an *lrp* transposon insertion mutant using quantitative PCR. Through this comparative qPCR analysis, we hope to support the identification of novel roles of the Lrp DNA regulator involvement in cross-talk with the quorum sensing pathways that has not been previously recognized. Due to the virulence of *Pseudomonas aeruginosa*, if Lrp can be identified as a factor in the regulation of the quorum sensing networks, it could potentially be used as a therapeutic target in the disruption of the production of many virulence factors such biofilms, siderophores, toxins and motility which are all regulated by the quorum sensing networks.