

EXECUTIVE SUMMARY [NON-CONFIDENTIAL, NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]: State the application's broad, long-term objectives and specific aims, making reference to the potential public benefits of the project relevant to California. Do not include proprietary or confidential information. This may be distributed before the funding decision has been finalized.

The goal of this study is to identify proteins produced or degraded in response to a bacterial pheromone or signal molecule. The concentration of the signal molecule indicates that the bacteria have reached a particular cell density or quorum. This ability to sense population density allows the bacteria to carry out group activities, such as host invasion. The quorum sensing system is not well understood in *Escherichia coli* and most other bacteria. The proteins contained in the bacterial cell will be separated and those that are made or degraded in response to the added signal molecule will be identified. By knowing which proteins are made or degraded in response to the signal molecule, it is possible to work backwards to identify the genes regulated by the quorum sensing system. Knowledge of the gene systems regulated by quorum sensing may allow the identification of potential targets for development of new antibiotics. Broad, long-term objectives of this proposal include providing enhanced training opportunities for my students and maintaining my own currency in the field as well as providing a foundation for expanded facilities via external funding.