Photorhabdus asymbiotica Quorum Sensing Gene PauR May Also Participate in Insect Cell Sensing

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RATIONALE. Photorhabdus asymbiotica (Pa) is a Gram-negative bacterium, pathogenic to insects and humans (Fig.1). Apart from apoptosis induction and septicemia by toxin effectors, quorum sensing mediated by PauR gene (Fig.2) is a mechanism recently linked to its virulence. To thrive in either host, Pa regulates its gene expression, leading to metabolic shift between 30°C (insect) and 37°C (human). This project attempts to explore the involvement of PauR in P. asymbiotica pathogenicity. Here, we focus on the effect of Pa growing temperatures on the PauR gene expression in the presence or absence of Drosophila melanogaster S2 cells. A Pa gene with putative role in temperature and environment sensing, pau00087, was included to contrast the profile of the quorum sensing gene.

CONCLUSION. P. asymbiotica grown at 30°C is more pathogenic to insect cells compared to those grown at 37°C. However, growing temperature is not involved in regulating PauR response in pathogenicity. In contrast, pau00087 of 37°C-Pa is more sensitive to the presence of S2 cells and temperature change than its 30°C-Pa counterpart. Nevertheless, quorum sensing gene PauR is consistently and significantly upregulated upon contact with insect cells, which eludes us to suspect a second role of PauR in host cell detection.

FUTURE WORK
Confirmation of host detection using S2 cell supernatant (control) and other insect or mammalian cell lines. PauR profile during growth.

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REFERENCES