Research Theme

Infection and Immunity

Research Project Title

Systems Biology of Antimicrobial Resistant *Acinetobacter baumannii* from the field

Principal Investigator

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Co-supervisor

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Project Description

*Acinetobacter baumannii* is an opportunistic Gram negative pathogen that is notorious for its tendency to cause ventilator-associated pneumonias and bacteremia in immunocompromised individuals, especially in nosocomial infections and intensive care unit settings. In February 2017, the World Health Organisation released a list of priority pathogens which identified *A. baumannii* as one of three ‘critical threats’ amongst drug resistant bacteria, and deplored the need for renewed research efforts to develop new and effective methods to tackle these infections. Here, we will undertake a multidisciplinary approach to characterize *A. baumannii* isolated from the environment as well as human patients to unravel novel mechanisms of acquisition of resistance. Specifically, we will

1) Define the biomolecular phenotypes of environmental and clinical *A. baumannii*
2) Characterize pathways responsible for antimicrobial resistance
3) Determine the impact of antimicrobial resistance on bacterial fitness and virulence

The PhD student will be involved in systems biology research, where he will combine microbiology, infection biology, and high-end lipidomics/metabolomics and transcriptomics as well as genetics to dissect mechanisms contributing to the urgent problem of nosocomial infections and antimicrobial resistance. This work is done in close collaboration with clinical partners from local healthcare groups, including Tan Tock Seng Hospital. The outcomes of this research will eventually lay the foundation for the future of drug discovery, stratified medicine and point of care diagnostics for infectious diseases.

Contact Us

If you have questions regarding this project, please email the Principal Investigator.

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