

Research Theme: Cell Biology / Microbiology
Research Project Title: Dissecting synergetic outcome of host-microbe interactions in wound of diabetic animal models
Principal Investigator/Supervisor: Asst Prof Guillaume Thibault
Co-supervisor/ Collaborator(s) (if any): Assoc Prof Kimberly Kline
Project Description
<p>BACKGROUND Both the type 2 diabetic (T2D) state, as well as microbes induce endoplasmic reticulum (ER) stress in host cells. We have shown that Group A Streptococcus (GAS)-induced ER stress results in the release of nutritional factors that promote bacterial growth and biofilm formation and we speculate that the same mechanism is mediated by other bacteria or functional groups of bacteria to promote wound-associated biofilms. Here, we test the hypothesis that unresolved ER stress compromises wound healing by inhibiting angiogenesis and inflammation, which can both promote and exacerbate bacterial infection.</p> <p>PROPOSED WORK Using a combination of multidisciplinary approaches, the PhD candidate will dissect the mechanisms by which the UPR contributes to polymicrobial wound infections by (1) establishing the role of the UPR in wound healing, (2) determining the contribution of the UPR to bacterial infection and growth <i>in vitro</i>, and (3) interrogating and therapeutically targeting the UPR during polymicrobial infection <i>in vivo</i>. Therapeutic targets for infections and the UPR which currently have none, may have long-term health benefits for Singapore. The PhD candidate will use cell biology, genetic, and biochemistry approaches.</p> <p>The PhD candidate will work together with an experience team of experts. Find more about the Thibault lab at www.thibaultlab.com.</p>
Supervisor contact:
If you have questions regarding this project, please email the Principal Investigator: thibaul@ntu.edu.sg
SBS contact and how to apply:
Associate Chair-Biological Sciences (Graduate Studies): AC-SBS-GS@ntu.edu.sg Please apply at the following: http://admissions.ntu.edu.sg/graduate/R-Programs/R-WhenYouApply/Pages/R-ApplyOnline.aspx