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Research Introduction:

Bacterial pathogenesis & Host responses

My long term research goal is to study the host defending system in against pathogen, particularly focused on the innate immune system with an emphasis on solving the pathogenesis using mouse genetics as a tool. In the past few years, I have applied varies gene deficient animals, including NLRP3-, Toll-like receptor (TLR)-, iNOS-, and cystatin C-deficient mice, to study how host deficient in certain defending system responds to the bacterial infection.



In addition, I also devoted to the evaluation of functionalized nanoparticles for probing pathogenic bacteria. We already obtained promising results and earned valuable experiences in constructing the functionalized nanoparticles for targeting and killing pathogenic bacteria.

Molecular imaging is a rapidly emerging field, providing noninvasive visual quantitative representations of fundamental biological processes in intact living subjects. We developed an *in vivo* light reporting murine model system to monitor the inflammatory responses *in vivo*. We applied this reporting system in two disease models, such as ***Streptococcus pyogenes* induced necrotizing fasciitis** and ***Clostridium difficile* induced colitis**.

I believe a combined basic and applied approach, with the focus on the inflammatory responses in human disease, is worth of such an investment in time and effort to better understand the innate immune system in host defending mechanisms.

Education

Ph.D., National Cheng-Kung University

Research

Clinical microbiology, Infectious diseases, Animal disease models