

Department of Biomedical Sciences
presents a seminar



“Mechanistic Insights into MCR-1/2 Colistin Resistance”

Dr. Youjun Feng
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Date : 21 December 2017

Time: 11:00am to 12:30pm

Venue: Meeting Room 2-130, 1/F, Block 2, To Yuen Building

Abstract

Antibiotic resistance is becoming a prevalent threat to the provision of safe and effective health care worldwide. Antimicrobial resistance (AMR) is associated with 700,000 deaths each year. It is estimated by O'Neill and his team that AMR would claim for as many as 10,000,000 global deaths per year by 2050. Despite that this prediction is exaggerated and unreliable, we acknowledge that AMR has been posing an ever-growing burden on clinical therapies and public health, thereby highlighting the urgent need for nationwide response to alleviate this burden. Polymyxins, a class of cationic cyclic polypeptide antibiotics, act as a “last-resort” option against infections with carbapenem-resistant gram-negative pathogens. However, the emergence and global spread of plasmid-borne mobilized colistin resistance determinants (*mcr-1*) has greatly threatened the renewed interest of colistin (polymyxin E) in clinical therapies. To the best of our knowledge, *mcr-1*-harboring Enterobacteriaceae have been detected in no less than 40 countries worldwide, spanning 5 of 7 continents, of which the United States of America is not exceptional. This talk concentrates on research work in Dr. Feng's lab in the past two years, esp., mechanistic insights into MCR-1/2 colistin resistance: i) genetic and functional identification of transferable MCR-1/2 resistance to polymyxin, a last line of refuge against lethal infections by superbugs with carbapenem resistance; ii) complex dissemination and spread of diversified plasmids-aided *mcr-1* determinants amongst human/animal gut microbiota. Our long-term research plan is aiming to provide molecular basis for the rational development of small molecules targeting the reversal of MCR-like resistance to colistin, a last-resort antibiotic against multi-drug resistant pathogens.

About the Speaker

Dr. Feng, a recipient of the “Young 1000 Talents” award, is a professor in School of Medicine/College of Animal Sciences, Zhejiang University. Dr. Feng's research interest focuses on metabolism, pathogenesis and antibiotic resistance of gut microbiota. So far, Dr. Feng has been authored in more than **90** peer-reviewed international journals including **PLoS Pathogens**, **mBo**, **Microbiome**, etc. Also, Dr. Feng is an editorial board member of Journals **Virulence**, **Frontiers in Cellular and Infection Microbiology (FCIM)** and **Scientific Reports**.

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All are welcome!