

SCMS Seminar



TWO-STAGE MICROBIAL ASSOCIATION MAPPING FRAMEWORK WITH ADVANCED FDR CONTROLLING PROCEDURES

Dr. Jiyuan Hu
SCMS

Lecture

Time: 10:30-11:00 am., Wednesday, Nov. 22, 2017

Venue: Room 2213, East Main Guanghua Tower, Handan Campus

Abstract: To test for microbial association with the research outcome at a specific target taxonomic rank, we propose a two-stage microbial association mapping framework (massMap) which uses the taxonomic grouping information from the taxonomic tree to strengthen the statistical power in the association test. The framework first screens the association of taxonomic groups (clades) at a pre-selected higher taxonomic rank using the optimal microbiome-based association test OMiAT. Then it proceeds to test the association for each candidate taxon at the target rank within the significant taxonomic groups identified in the first stage only. Hierarchical BH and Selected Subset Testing procedures are evaluated to control the FDRs. Our extensive simulations and two real data analyses have shown the efficiency of the proposed framework.