BRIGHAM AND WOMEN'S HOSPITAL

HARVARD MEDICAL SCHOOL

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Channing Division of Network Medicine

Channing Microbiome Seminar
September 27 (Friday), 2024, 9AM (ET)
MCP 5th-floor large conference room & Zoom:
https://us02web.zoom.us/j/81070959105?pwd=RFJNd3dSZmR6dXJZNjJiYVVzQ3NEQT09
Meeting ID: 810 7095 9105; Passcode: 984617

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Identification and validation of microbial biomarkers from cross-cohort datasets

The microbiome coordinates with multiple host physiological processes, the perturbation of which has been increasingly suggested to associate with a wide spectrum of diseases. Particularly, microbial signatures derived from fecal samples are now emerging as novel non-invasive biomarkers for disease susceptibility, progression, prognostics, and treatment response. One of the prevailing challenges in microbial biomarker studies lies in the substantial heterogeneity observed among different cohorts. This heterogeneity may obscure our understanding of the true associations between microbiota and disease or environmental factors, leading to variations in microbial biomarkers across different studies. Here, we will present xMarkerFinder, a four-stage computational framework for microbial biomarker identification with comprehensive validations from cross-cohort datasets, including differential signature identification, model construction, model validation, and biomarker interpretation. xMarkerFinder enables the identification and validation of reproducible biomarkers for cross-cohort studies, along with the establishment of classification models and potential microbiome-induced mechanisms.

Na Jiao, PI of Microbiome Systems Biology research group. She graduated from Jilin University in 2014 with a Bachelor of Engineering degree and earned a Ph.D. in Biology (Bioinformatics) from Tongji University in 2019. She conducted postdoctoral research at the Sixth Affiliated Hospital of Sun Yatsen University from 2019 to 2021. From 2021 to 2023, she served as a distinguished researcher at the National Clinical Research Center for Child Health and Diseases, Children's Hospital, Zhejiang University School of Medicine. In January 2024, she joined the Department of Microbiology and Immunology at Fudan University as a young researcher. Her research focuses on interactions between microbiota and hosts, exploration and mining of microbiome, and advancement and development of metagenomic analysis techniques and platforms. She has published numerous research papers in journals such as Nature Microbiology, Nature Communications, Cell Reports Medicine, Gut, and Gut Microbes, primarily revolving around the prevention and treatment of chronic diseases through microbiome and host-microbiota interactions. She has been recognized in the Postdoctoral Innovative Talent Support Program and has received funding from the National Natural Science Foundation of China's Young Scientists Fund and General Program.

Hosted by Yang-Yu Liu