CQM Seminar Series: Statistics In Action

DATA INTEGRATION IN SPATIAL TRANSCRIPTOMICS

DATE: 18th November 2022, Friday   TIME: 2.00pm - 3.00pm

Abstract

Spatially resolved transcriptomics are a set of emerging technologies that enable transcriptomic profiling on tissues with their physical locations. PRECAST is an efficient data integration method for multiple spatial transcriptomics data with non-cluster-relevant effects such as the complex batch effects. PRECAST unifies spatial factor analysis simultaneously with spatial clustering and embedding alignment. PRECAST has effectively integrates multiple tissue slides with spots mixed across datasets and cell/domain clusters separated in both simulated and four spatial transcriptomics datasets from either low or near single- cell resolution, demonstrating the improved cell/domain detection with outstanding visualization, the estimated embeddings and cell/domain labels facilitate many downstream analyses.

Speakers

Dr. Jin Liu is currently an Assistant Professor at the Centre for Quantitative Medicine, Health Services & System Research, in Duke-NUS Medical School. He has authored or co-authored over 60 publications including Nucleic Acids Research, Gut, Nature Genetics, Bioinformatics, Biometrics, and Biostatistics, among others. He has won four Academic Research Fund (AcRF) Tier 2 grants from MOE, and has also been involved in a few NMRC supported grants. His current research is primarily focused on the development of statistical methods for the analysis of large-scale genetic and genomic data. He is particularly interested in developing statistical methods for spatial transcriptomics.

Dr. Joe Yeong Poh Sheng is a Group Leader in the Institute of Molecular and Cell Biology (IMCB, A*STAR) and holds a joint appointment in the Department of Anatomical Pathology, Singapore General Hospital (SGH). His main research focus is to understand and overcome the resistance of immune-checkpoint blockade immunotherapy. Being a pioneer in the automation of quantitative multiplex immunohistochemistry, using clinical autostainers to study and quantitate tumor immune microenvironments in clinical samples, and works on cancer immunology, Dr Joe's vision is to provide a bridge between immunologists and pathologists to better harness the advances of immunotherapy.

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