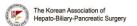


HBP SURGERY WEEK 2022

MARCH 3 THU - 5 SAT, 2022 CONRAD HOTEL, SEOUL, KOREA www.khbps.org

& The 56th Annual Congress of the Korean Association of HBP Surgery



BR 1-3

Single-cell approaches to understand human development, aging and diseases

Jong-Eun Park

Graduate School of Medical Science and Engineering, KAIST, Daejeon, 34141, Republic of Korea

Lecture: Since the first single-cell transcriptome analysis in 2009, the throughput of single-cell transcriptomics techniques has grown exponentially, allowing for a single study to characterize millions of cells. This technique is now being applied to various domains in biology, including human development, aging and pathologies. The human cell atlas initiative is a global network to bring all human single-cell data into a single map. As a part of this collaborative effort, we have built a map of human thymus across human lifetime, unraveling the process of birth and death of human organ. Meanwhile, to seamlessly integrate data with complex batch structure, we have developed a computational algorithm named BBKNN, which can be used to efficiently integrate large-scale dataset across multiple organs, timelines and diseases. With this pipeline, we have been building population-level single-cell atlas on multiple pathologies including inflammatory diseases and cancer tissues, which unveils new disease associated cell types and gene expression patterns.