



Submission No.: CS14-9359

Session : Concurrent Symposium 14 (Basic)

Date & Time, Place : November 18 (Sat), 15:30-17:00, Room 6F-1

Session Title : Biology of organoids

Regional and cell-type specification of Taste Bud Organoids

Yong Taek Jeong

Korea University, Republic of Korea

Taste bud is the primary gustatory organs in vertebrates. Over the decades, various experimental approaches have established the current classification of taste buds based on their morphological and functional characteristics: type I (glial-like cells), type II (receptor cells), type III (presynaptic cells), and type IV (precursor cells). Although studied extensively, complete characterization of the molecular heterogeneity of each type of cells remains elusive. To deconstruct the cellular heterogeneity and differentiation trajectories, we adopted 3D ex vivo culture of CVP (circumvallate papillae) and utilized single-cell RNA sequencing to establish the advanced taste cell atlas. The results of scRNAseq provided implications for the existence of an intermediate populations or transitional states, and by optimizing culture conditions for taste bud organoids, we successfully enriched intermediate cells that are induced to differentiate into mature taste cells. In conclusion, our comprehensive single-cell atlas of CVP broadened the current understanding of taste cells by providing transcriptomic information of individual cells and reconstructing the cell fate transitions.

