# 2019 年度　研究談話会（海外）

日 時：2019 年 10 月 11 日（金）18 時～19 時

場 所：第 1 小講堂

## In Vitro Culture and Differentiation of Mouse Dental Epithelial Organoids

エナメル質（再生不可能組織）再生を目的とした器官培養システムの確立

Enamel is the hardest tissue of the body and serves as a protective surface against tooth decay. Damage to enamel is permanent in humans because ameloblasts, epithelial cells responsible for enamel deposition, are lost during tooth eruption. In mouse incisors, however, adult dental epithelial stem cells (aDESCs) exist and produce ameloblasts providing enamel to the continuously growing tooth. Here, we describe the establishment of a long-term 3-dimensional organoid culture system for aDESCs isolated from adult mice. Organoids could be established from single aDESCs and formed spheres retaining the stratified epithelial structure in the initial culture condition. Buds reminiscent of epithelial invagination in early tooth development formed from the organoids with fibroblast growth factor 10 (Fgf10) treatment. A Notch signaling inhibitor increased basal cell number in organoids and, in combination treatment with Fgf10, induced ameloblast marker expression. Transcriptomic profiles of the organoids resembled those of pre-matured ameloblasts in mouse incisors.

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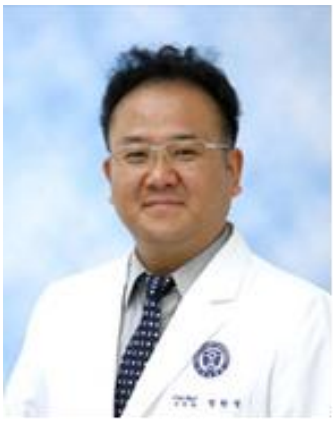

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