

論文名 : Cellular Dynamics of the Periodontal Ligament
During Orthodontic Tooth Movement. (要約)

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Periodontal Ligament (PDL) is a uniquely differentiated tissue, anchoring the tooth to the alveolar bone socket, important in oral function. While the *in vivo* cellular dynamics contributing to the bone resorption/apposition during the orthodontic tooth movement (OTM) is relatively well understood, that in the non-mineralized layer of the PDL remains elusive. In the present study, we analyzed the cell proliferative activity of the mouse molar PDL during OTM by taking advantage of the cell-tracing approach, in order to understand the cell differentiation trajectory of the PDL cells. Slow-cycling label-retaining cells, a putative cell population, were found in the PDL, and they distributed preferentially near the cementum surface. The OTM-induced proliferating cells with transit-amplifying cell marker-positive cells were evenly distributed within the PDL. Consistent with this result, single cell-derived cell clusters also did not have a specific distribution pattern after OTM. The discrepancy in the location of the label-retaining cells, and proliferating cell may indicate that the label-retaining cells found in the PDL are not the exclusive source of the transit-amplifying cells during OTM. Although further studies are required, our findings partially elucidate the characteristic of the proliferating cells in mouse molar PDL during OTM, which is crucial to understand the PDL cellular dynamics for the orthodontic treatment in humans.