Development of a multicellular 3D-bioprinted microtissue model of human periodontal ligament-alveolar bone biointerface: Towards a pre-clinical model of periodontal diseases and personalized periodontal tissue engineering

Vurat M. T., Şeker Ş., Lalegül-Ülker Ö., Parmaksiz M., Elçin A. E., Elçin Y. M.

Supplementary Materials

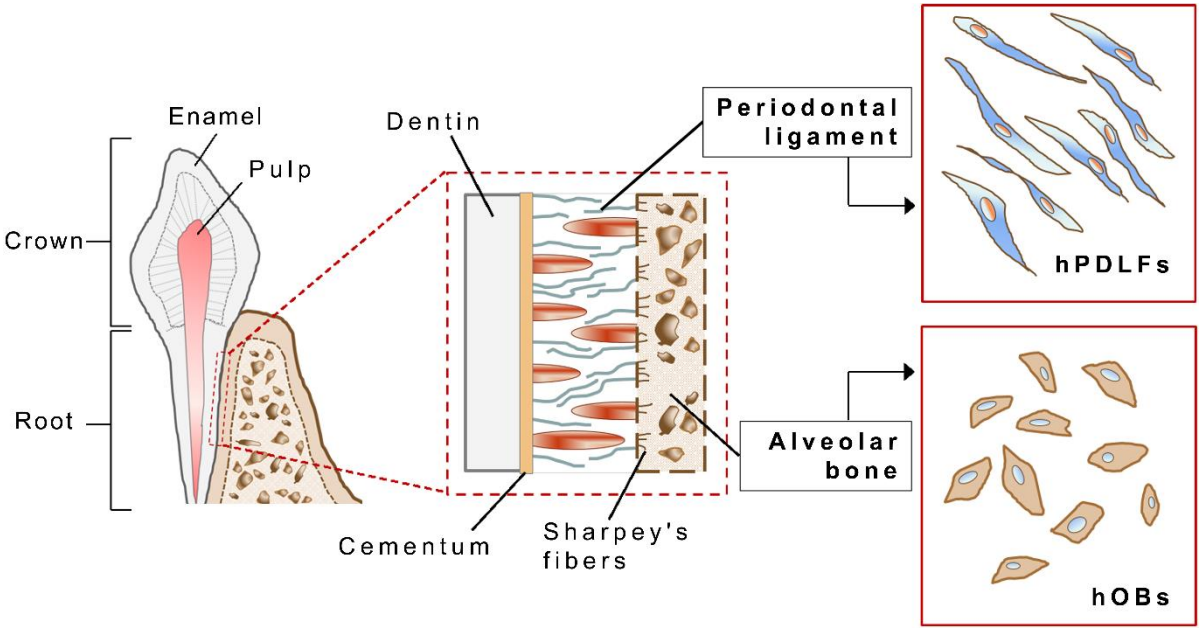

Fig. S1. Illustration of tooth and the surrounding tissues, including periodontal ligament (PDL) and alveolar bone (AB). The PDL-AB (periodontal/osteoblastic) biointerface is modeled by using the hPDLFs and hOBs.

Development of a multicellular 3D-bioprinted microtissue model of human periodontal ligament-alveolar bone biointerface: Towards a pre-clinical model of periodontal diseases and personalized periodontal tissue engineering

Vurat M. T., Şeker Ş., Lalegül-Ülker Ö., Parmaksiz M., Elçin A. E., Elçin Y. M.

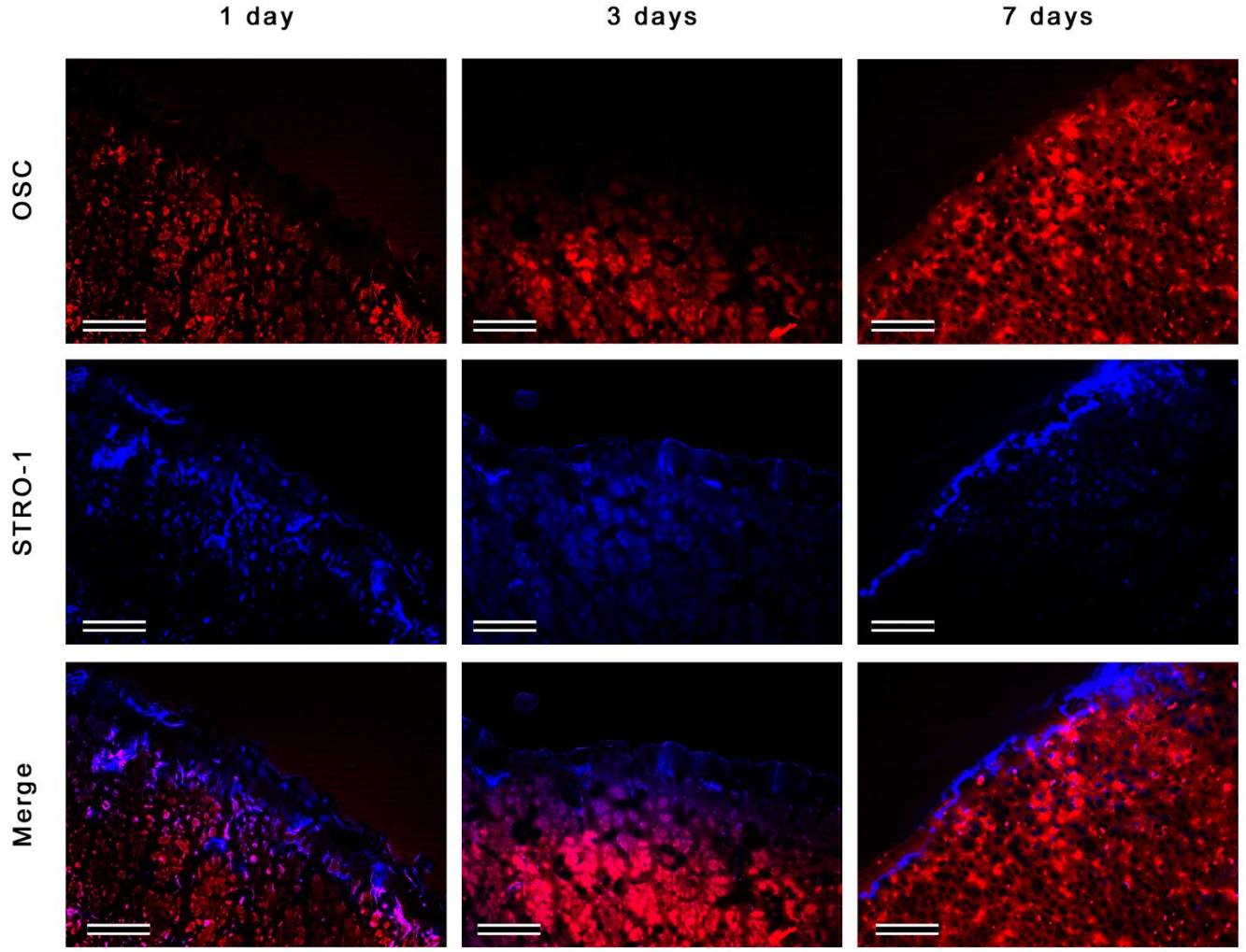

Fig. S2. Immunofluorescence micrographs demonstrating the 3D-bioprinted periodontal (containing STRO-1+ hPDLF cells) and osteoblastic (containing OSC+ hOBs) layers, separately and merged (top view). Scale bars= 100 μm.

Development of a multicellular 3D-bioprinted microtissue model of human periodontal ligament-alveolar bone biointerface: Towards a pre-clinical model of periodontal diseases and personalized periodontal tissue engineering

Vurat M. T., Şeker Ş., Lalegül-Ülker Ö., Parmaksiz M., Elçin A. E., Elçin Y. M.

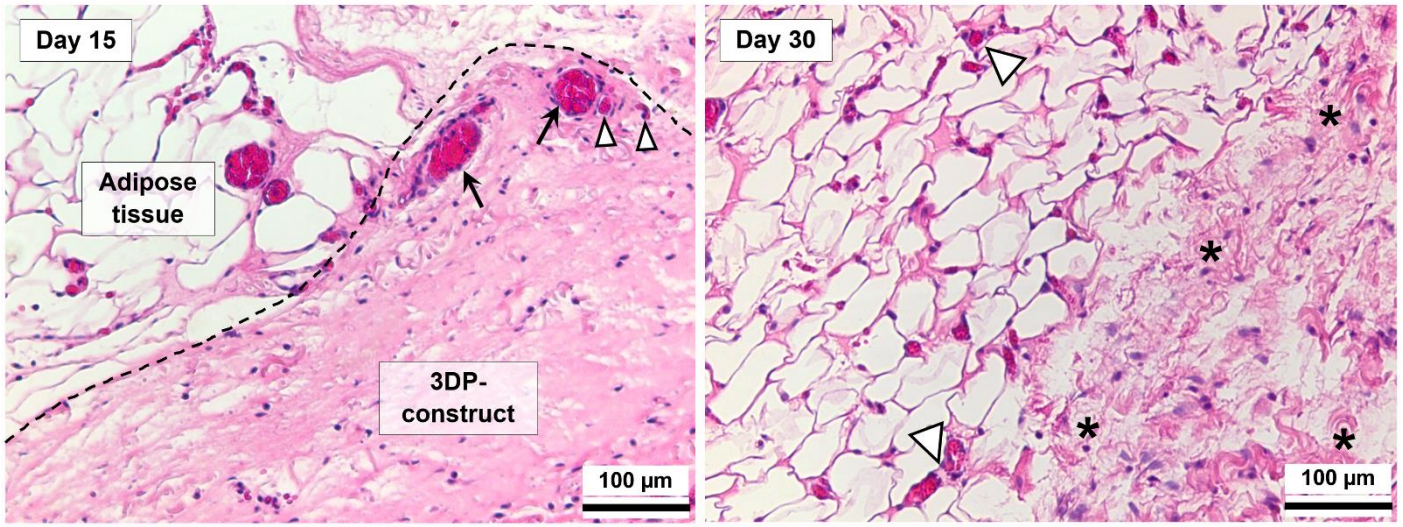

Fig. S3. Histologic evaluation of 3D-bioprinted acellular constructs subcutaneously implanted into the epigastric groin fascia of Wistar rats demonstrating a moderate level of inflammatory process during biodegradation. Host cell infiltration is evident inside the construct leading to a gradual degradation from the periphery (dashed line) where capillaries (white triangles) and small blood vessels (arrows) are prevalently visible (Day 15). Remnants of the construct at Day 30 are indicated with star symbol (H&E staining). Scale bars= 100 µm.

Development of a multicellular 3D-bioprinted microtissue model of human periodontal ligament-alveolar bone biointerface: Towards a pre-clinical model of periodontal diseases and personalized periodontal tissue engineering

Vurat M. T., Şeker Ş., Lalegül-Ülker Ö., Parmaksiz M., Elçin A. E., Elçin Y. M.

Suppl. Table 1. The optimal process parameters for 3D-bioprinting.

Parameter	Value
Gel-MA concentration	12.5% w/v
Radical photoinitiator concentration	0.5% w/v
Printing speed	5 mm s^{-1}
Extrusion pressure	50-55 kPa
Printing temperature	25 ^{o}C
Cartridge temperature	25 ^{o}C
Nozzle (inner) diameter	0.20 mm
UV exposure time	120 sec