

Supporting Information

Micro-Structured Patches for Dermal Regeneration Obtained via Electrophoretic Replica Deposition

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Supporting Information 1. Confocal Laser Microscopy.

The samples thickness was evaluated by confocal laser scanning microscope (Olympus LEXT OLS4100), 10X magnification BF Plan Semi-apochromatic objective lens (MPLFLN10X, Olympus). Figure SI1 shows the typical image and data obtained via such analysis: a representative picture of CP500 scaffold is here reported.

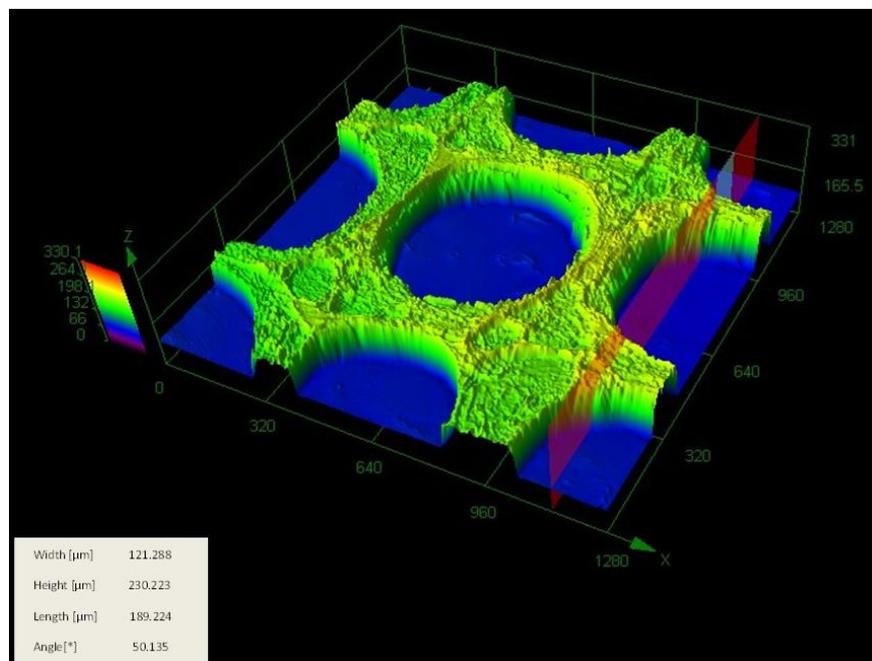


Figure SI1. Representative confocal laser scanning microscope of CP500.

Supporting Information 2. Preconditioning mechanical tests.

Tensile tests have been performed after three cycles of preconditioning up to 8% strain. Preconditioning is required when testing soft viscoelastic materials in order to achieve repeatable results (Y.C. Fung, Bioreology of soft tissues, Biorheology, 1973, vol. 10(2), 139-155); a small hysteresis was observed for all our samples (Figure SI2). The cycles of preconditioning up to 8% showed an almost elastic behavior, since the samples were fully preconditioned after two cycles and the hysteresis area was very small.



Figure SI2. Preconditioning uniaxial tensile tests on flat and micro-patterned patches in wet conditions: (a) CPR, (b) CP500, and (c) CP1000 specimens.

Supporting Information 3. Silver Staining

The reconstituted skin of all groups was excised to the level of panniculus carnosus layer, fixed in 10% formaldehyde, dehydrated, and then paraffin-embedded. Serial 10 μm paraffin sections were cut with a rotating microtome and stained with Hematoxylin and Eosin (H&E, kit from Asiapajouhesh, Tehran, Iran), silver and Masson's trichrome staining (Asiapajouhesh, Tehran, Iran), according to routine histological protocols.

Figure SI3 shows the Silver staining compared to Eosin, Silver, Masson's Trichrome Stains in Different Groups on Day 14. By performing silver staining, the reticular fibers (thin fibers which is being produced in the early phases of wound healing) were represented and indicated.

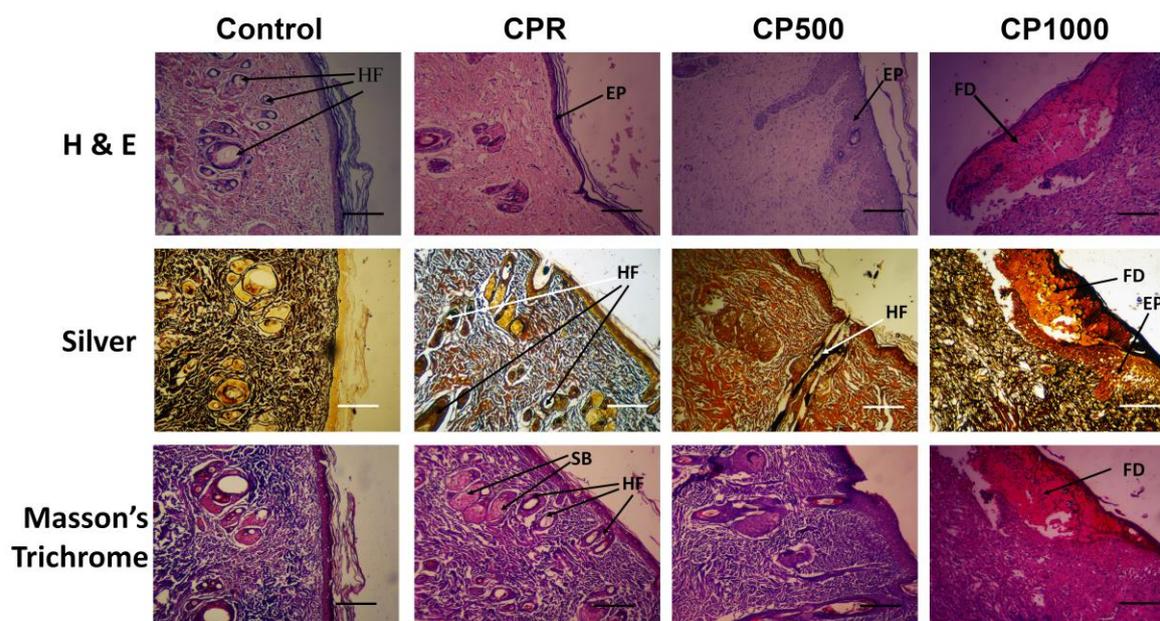


Figure SI3. Hematoxylin and Eosin, Silver, Masson's Trichrome Stains in Different Groups on Day 14. Scale bar= 50 μm . FD, fibrinous debris; EP, epithelialization; HF, hair follicle; SB, sebaceous gland.



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