Supporting Information
for

Electrospun Polyurethane-Gelatin Composite: A New Tissue Engineered Scaffold for Application in Skin Regeneration and Repair of Complex Wounds

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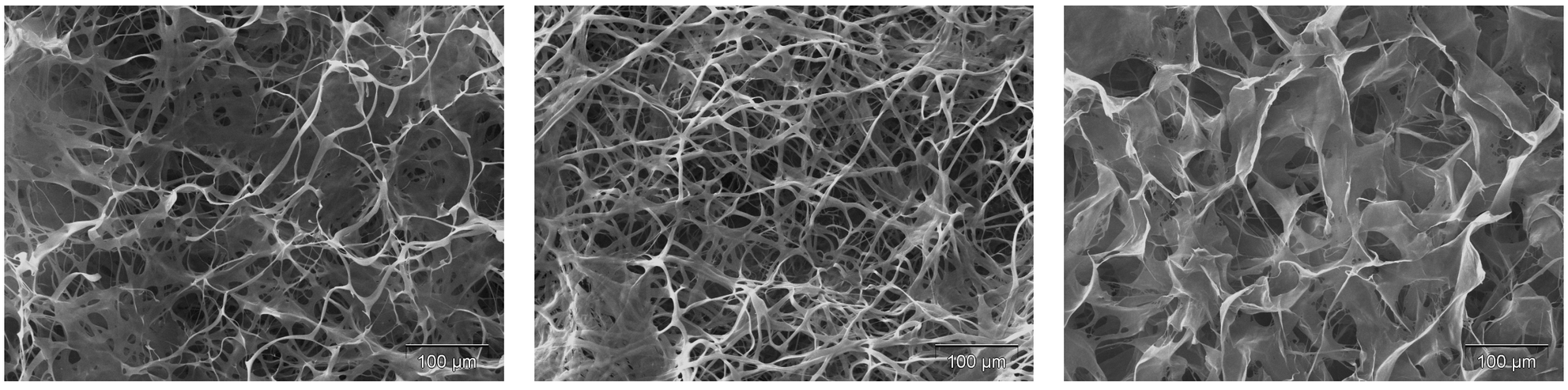
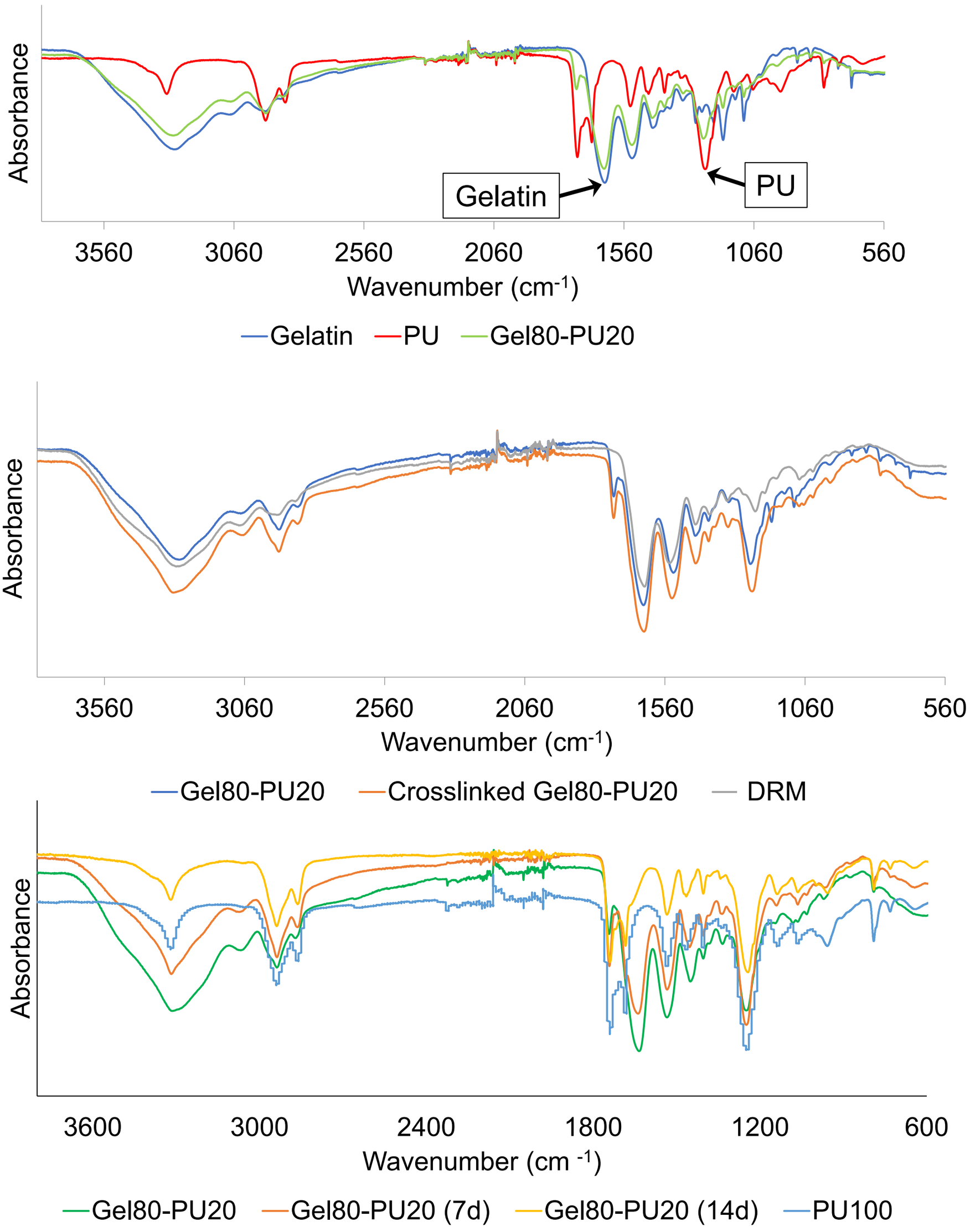
Including 13 figures from S1 to S13

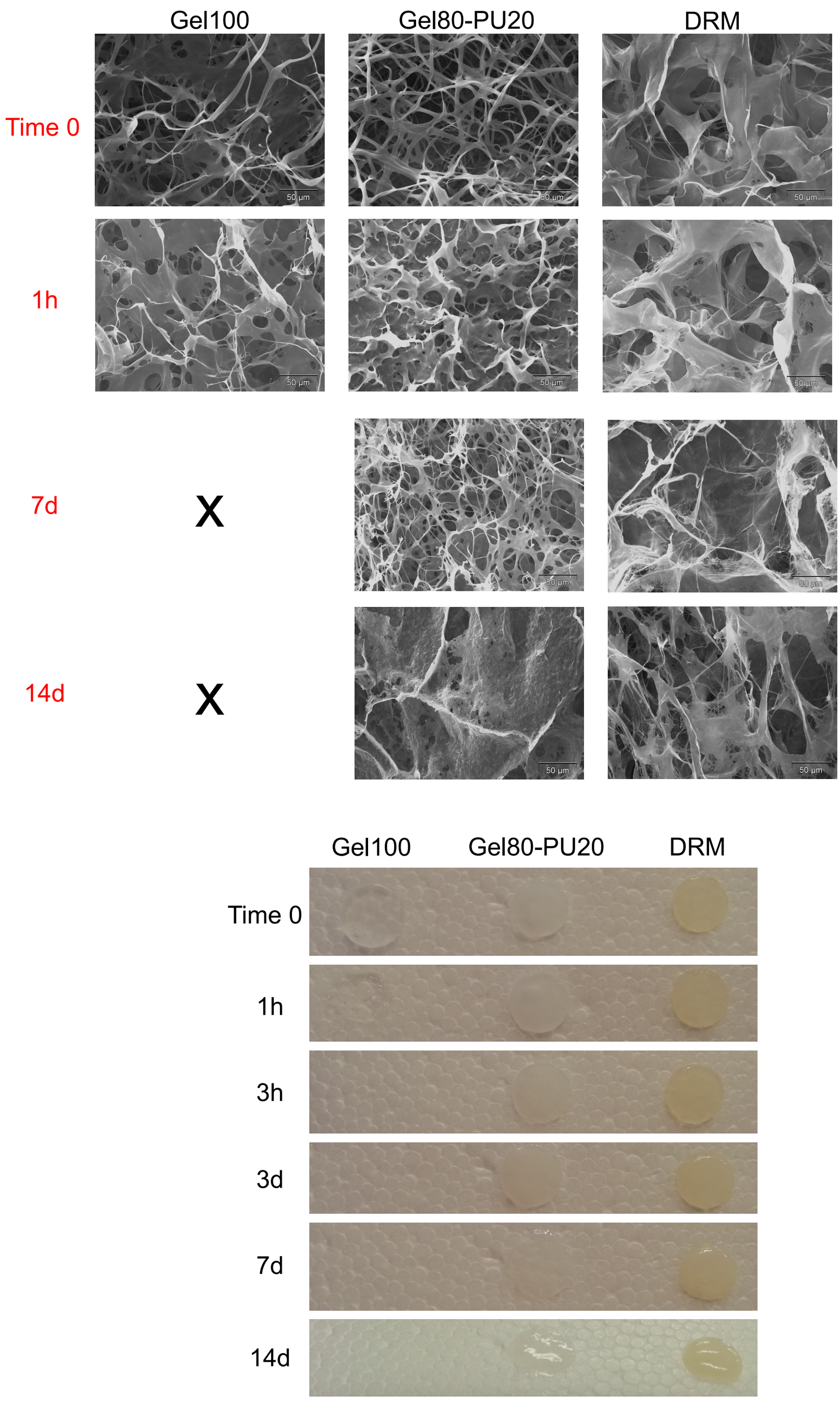


crosslinked Gel100 crosslinked Gel80-PU20 DRM

S1: SEM image of dried: crosslinked Gel100, crosslinked Gel80-PU20 and DRM. Scale bar: 100 µm

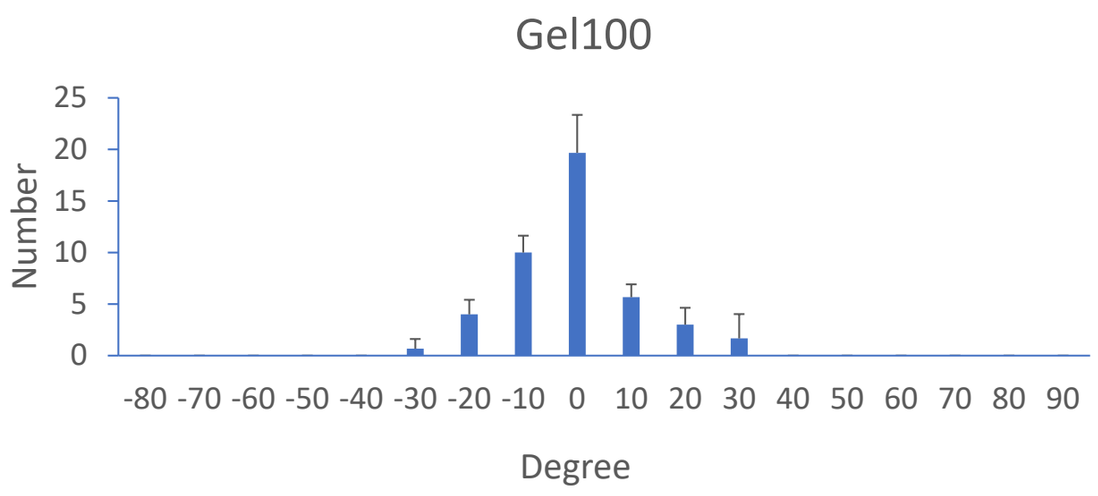


S2: ATR-FTIR spectrum of scaffolds. Top and middle: as-spun and crosslinked scaffolds. Bottom: scaffolds after 7 and 14 days of collagenase degradation compared with before degradation test and intact PU100

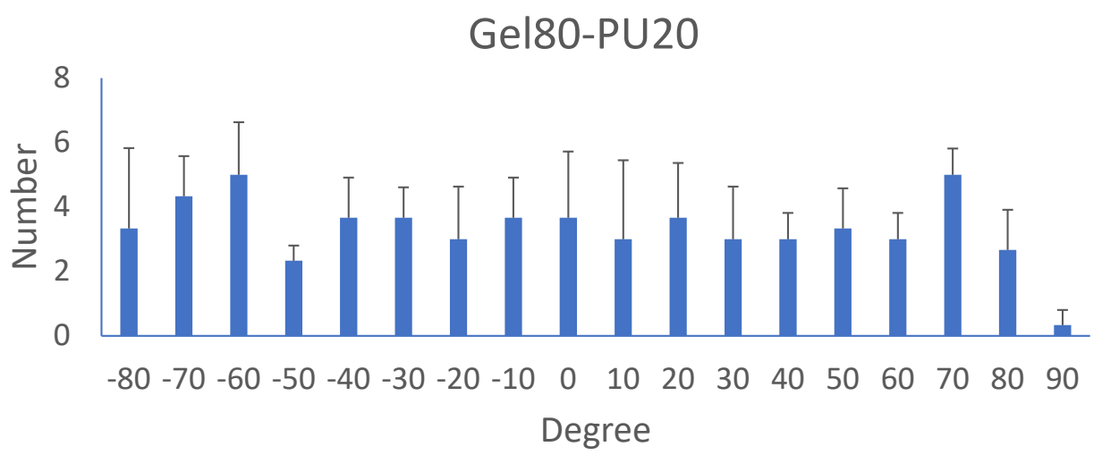


S3: SEM (top) and optical (bottom) images of the scaffolds after degradation assay

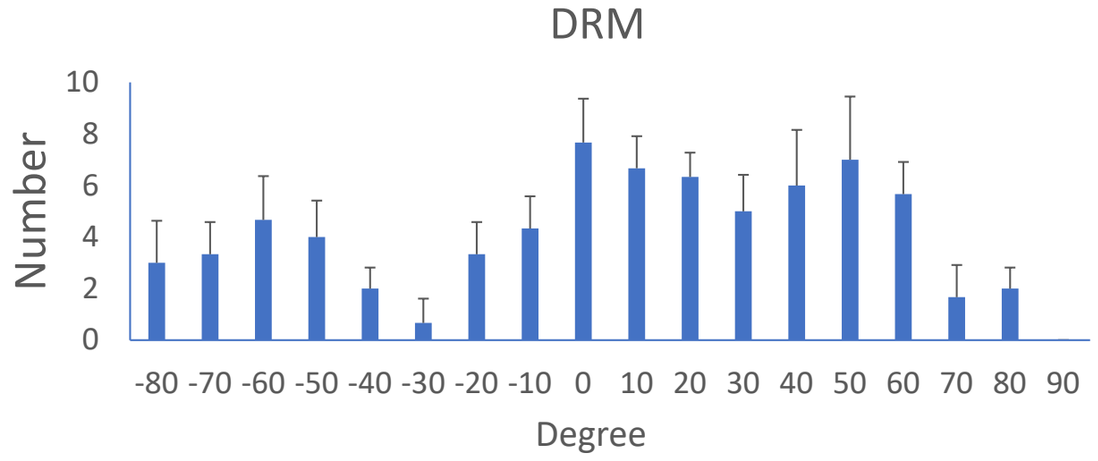
(a)



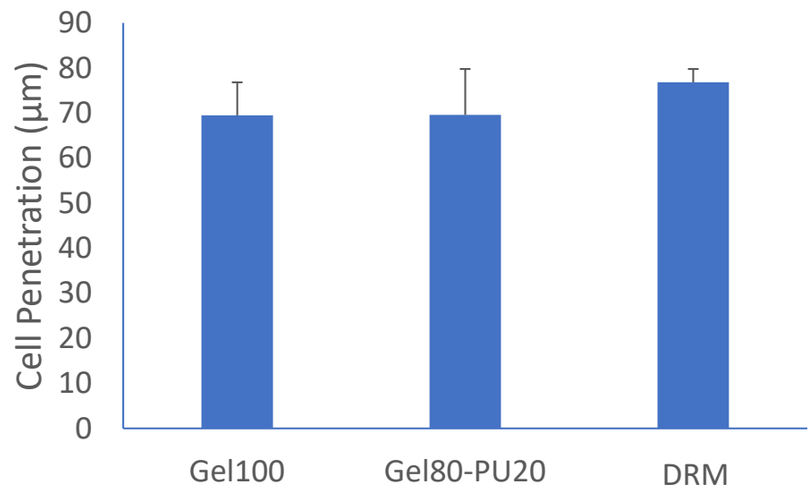
(b)



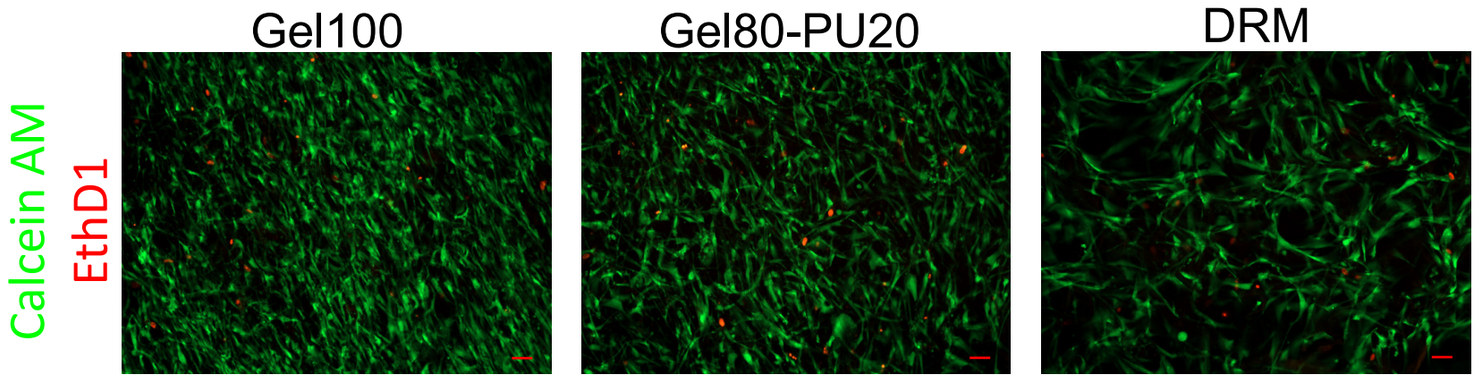
(c)



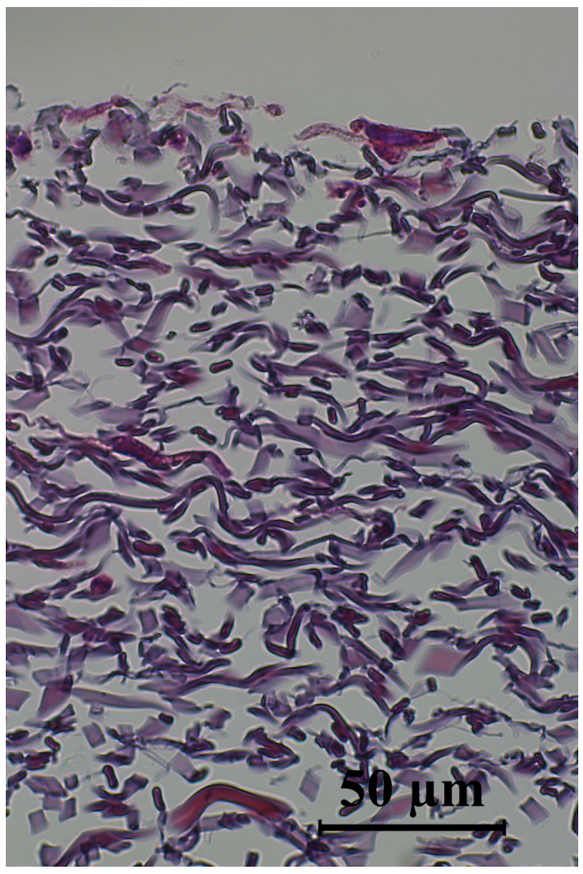
(d)



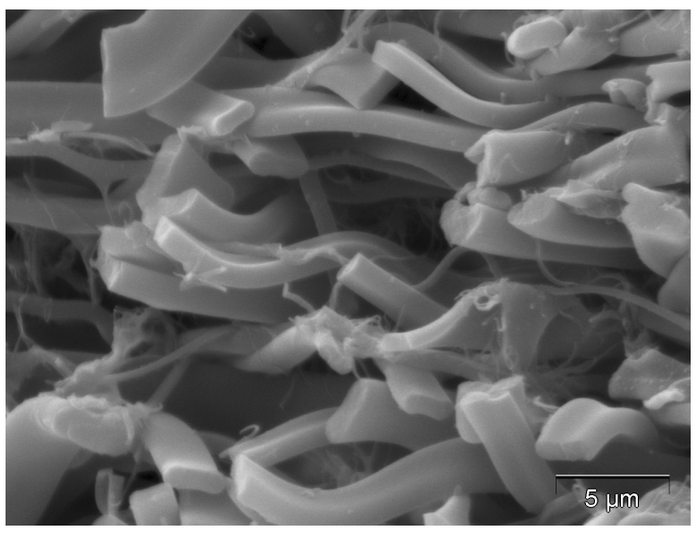
S4: (**a-c)**: Quantification of HDF cell orientation on different scaffolds after 7 days. **(d)**: Quantification of HDF cell penetration in different scaffolds after 7 days.



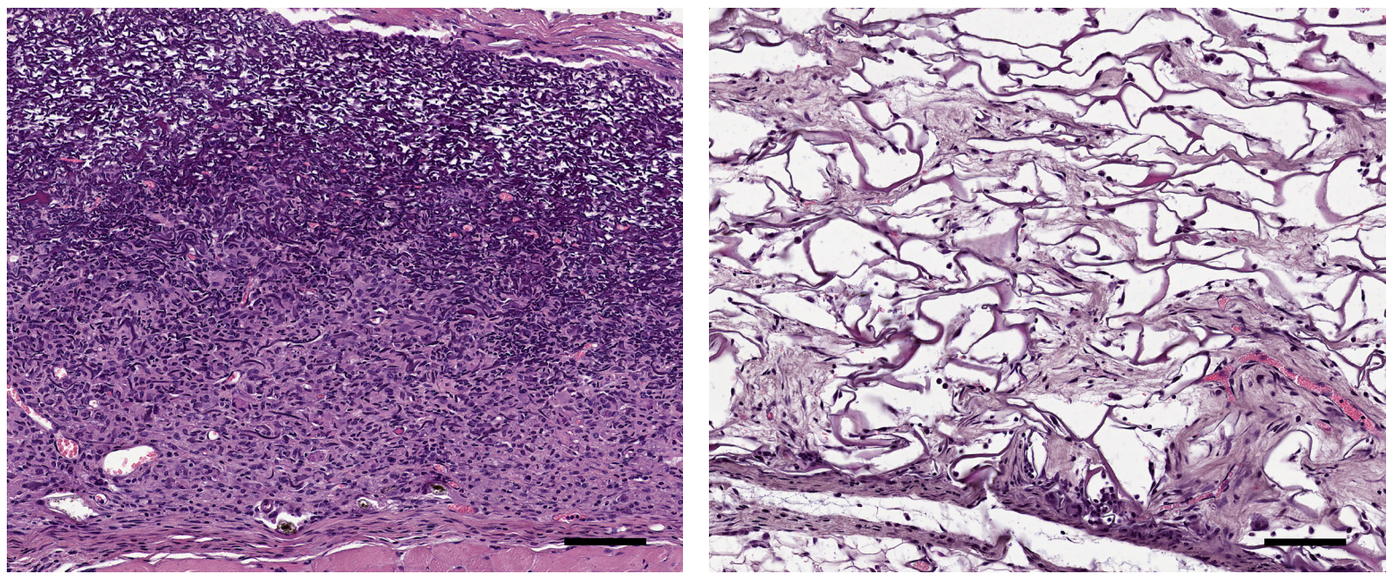
S5: Live-Dead staining of HDFs after 7 days culture on the scaffolds. Scale bar: 100 µm



S6: Trichrome staining of the acellular Gel80-PU20 scaffold kept in cell culture media for 7 days. Scale bar: 50 µm.

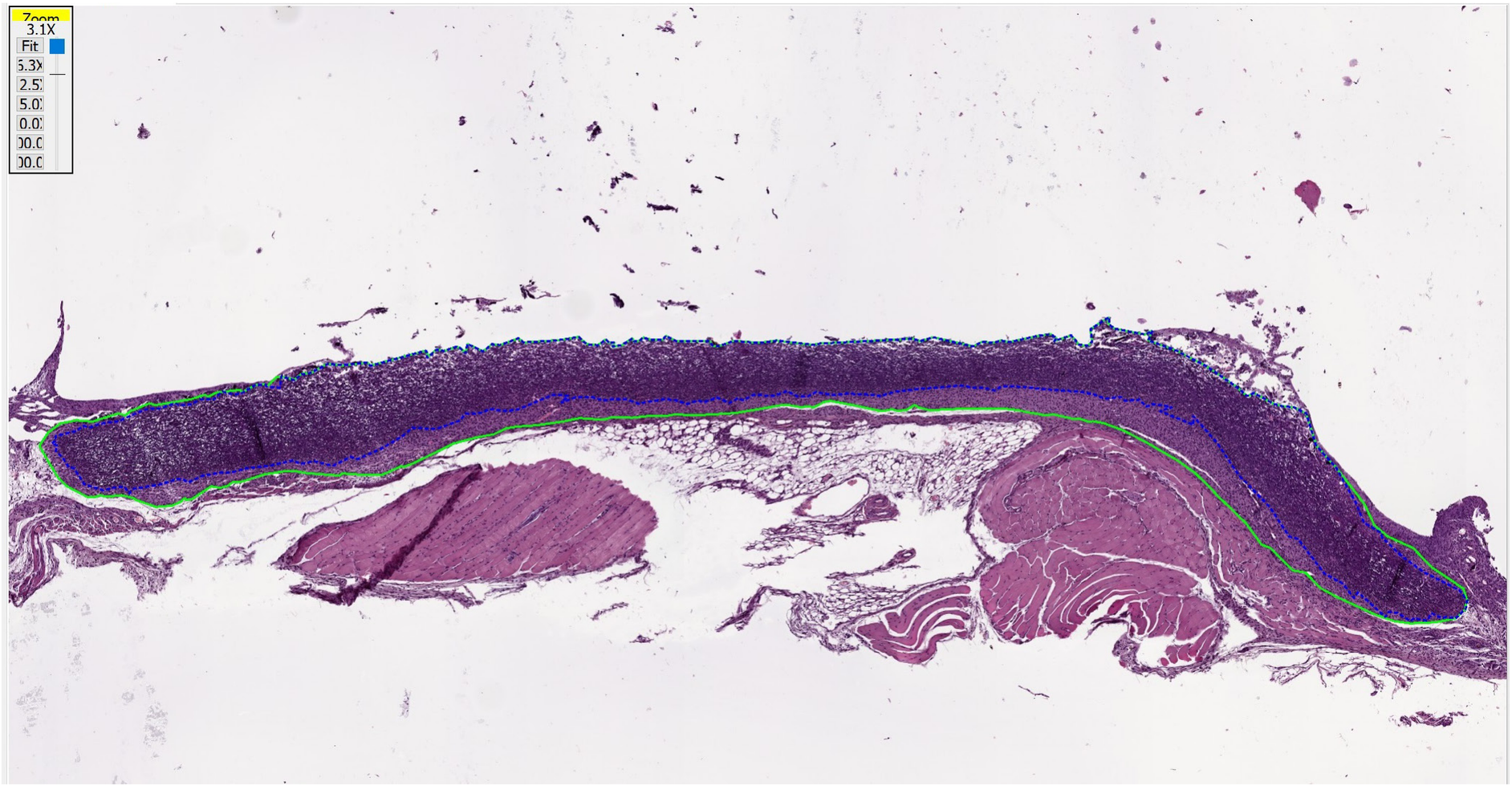


S7: SEM images of the cross section of an electrospun Gel80-PU20 membrane obtained after snap-freezing, breaking and drying. Scale bar: 5 µm.

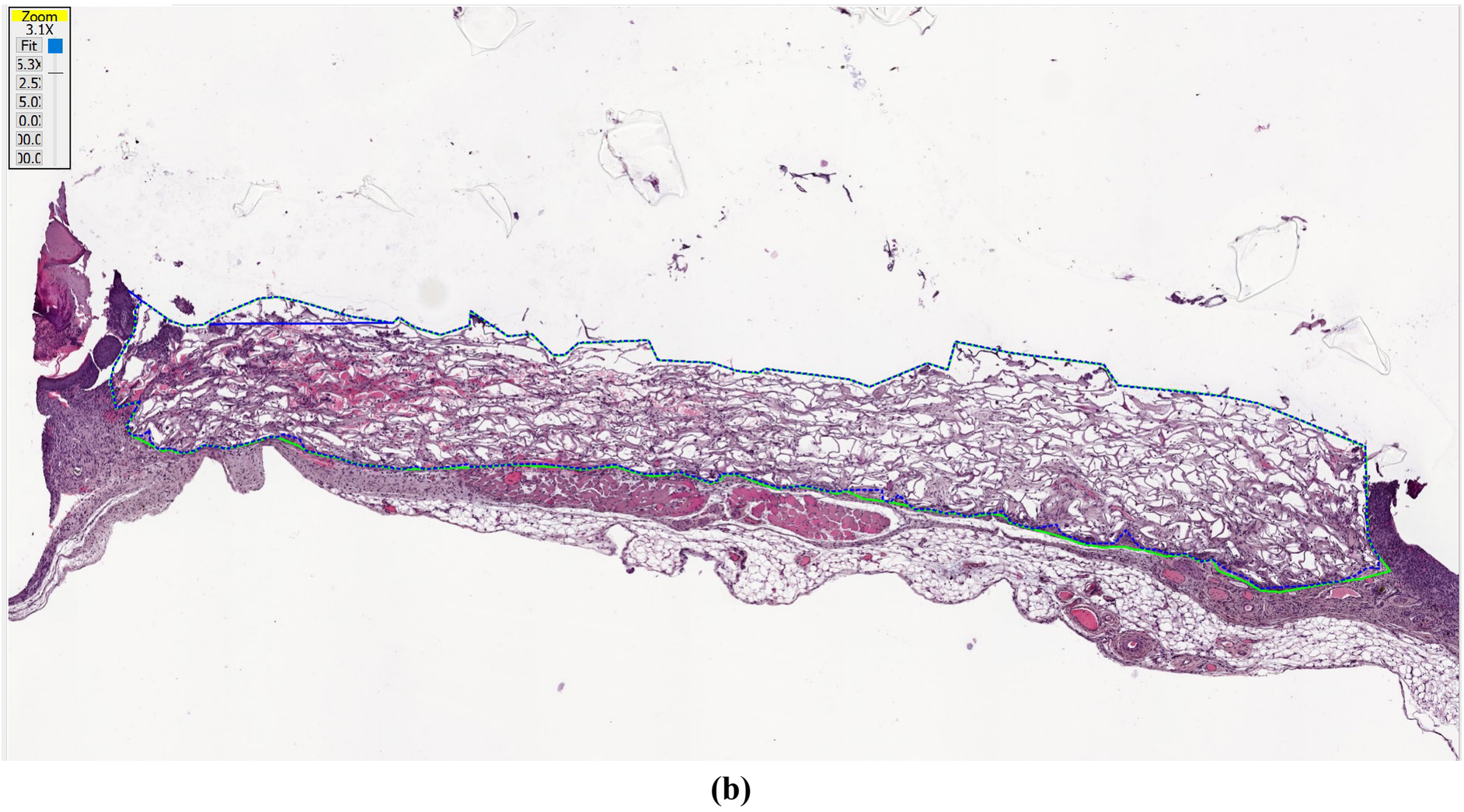


(a) **(b)**

S8: H&E staining of acellular (**a**): electrospun Gel80-PU20 membranes and (**b**): DRM, after implantation on mice for 20 days. Scale bar: 100 µm.

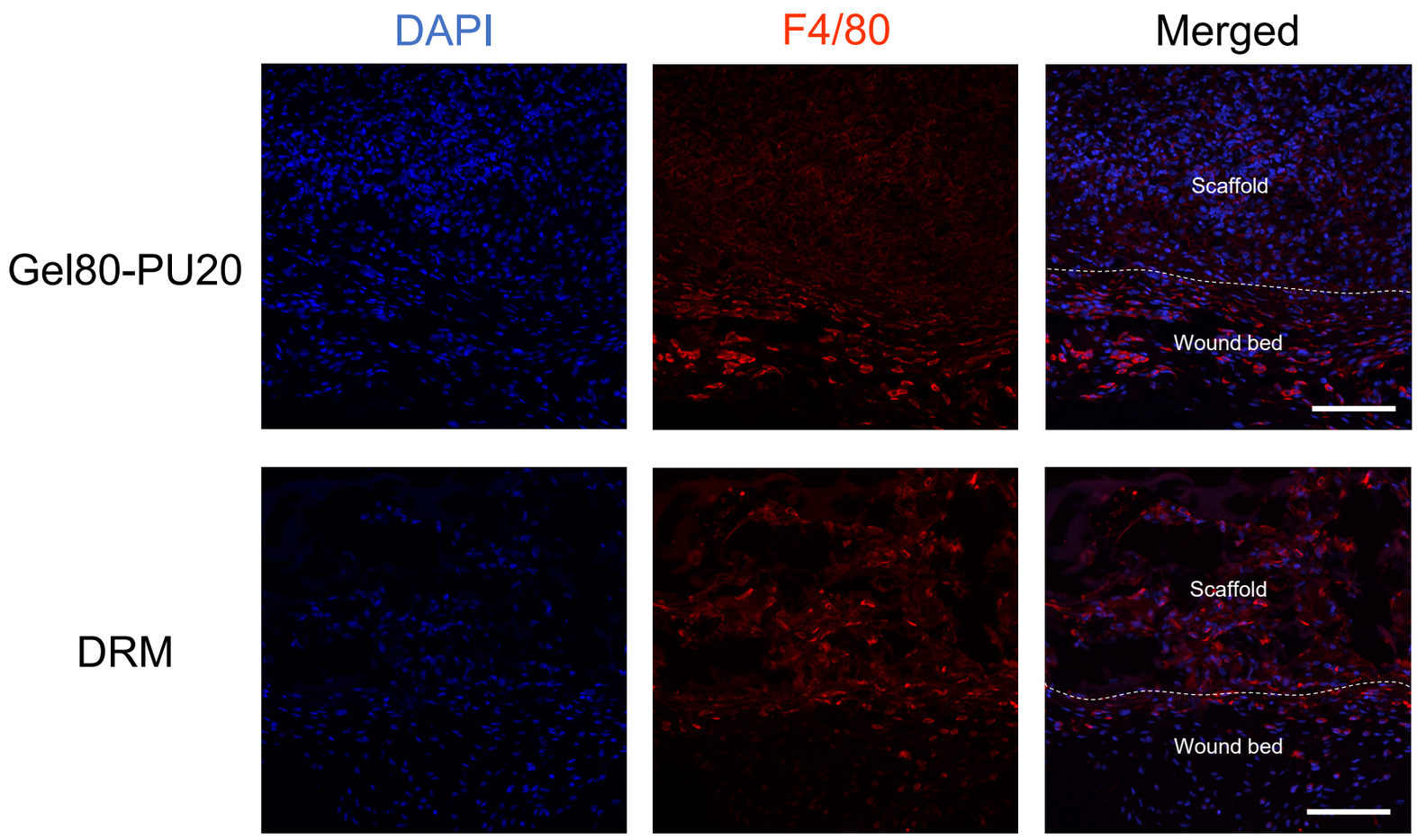


(a)

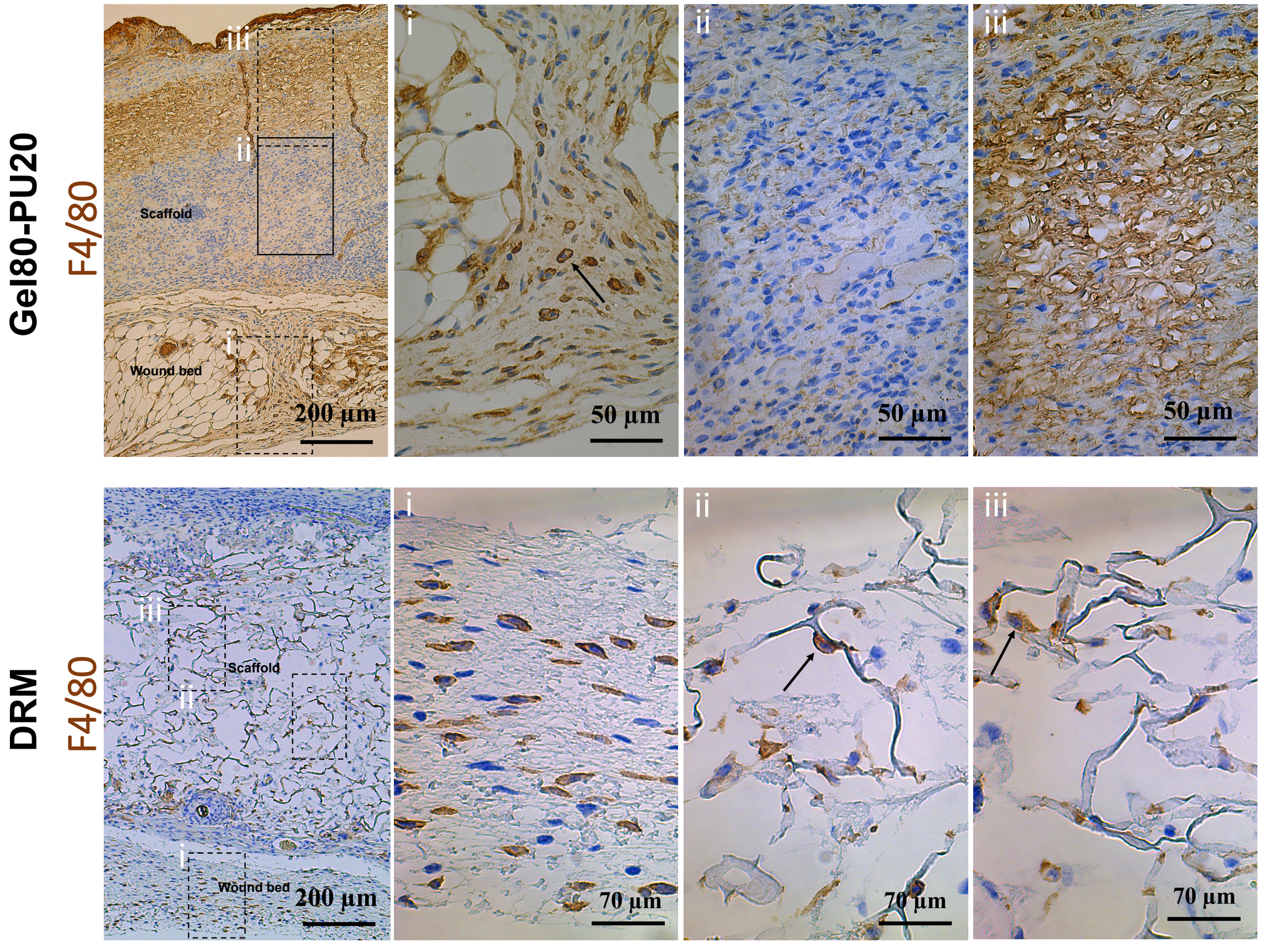


(b)

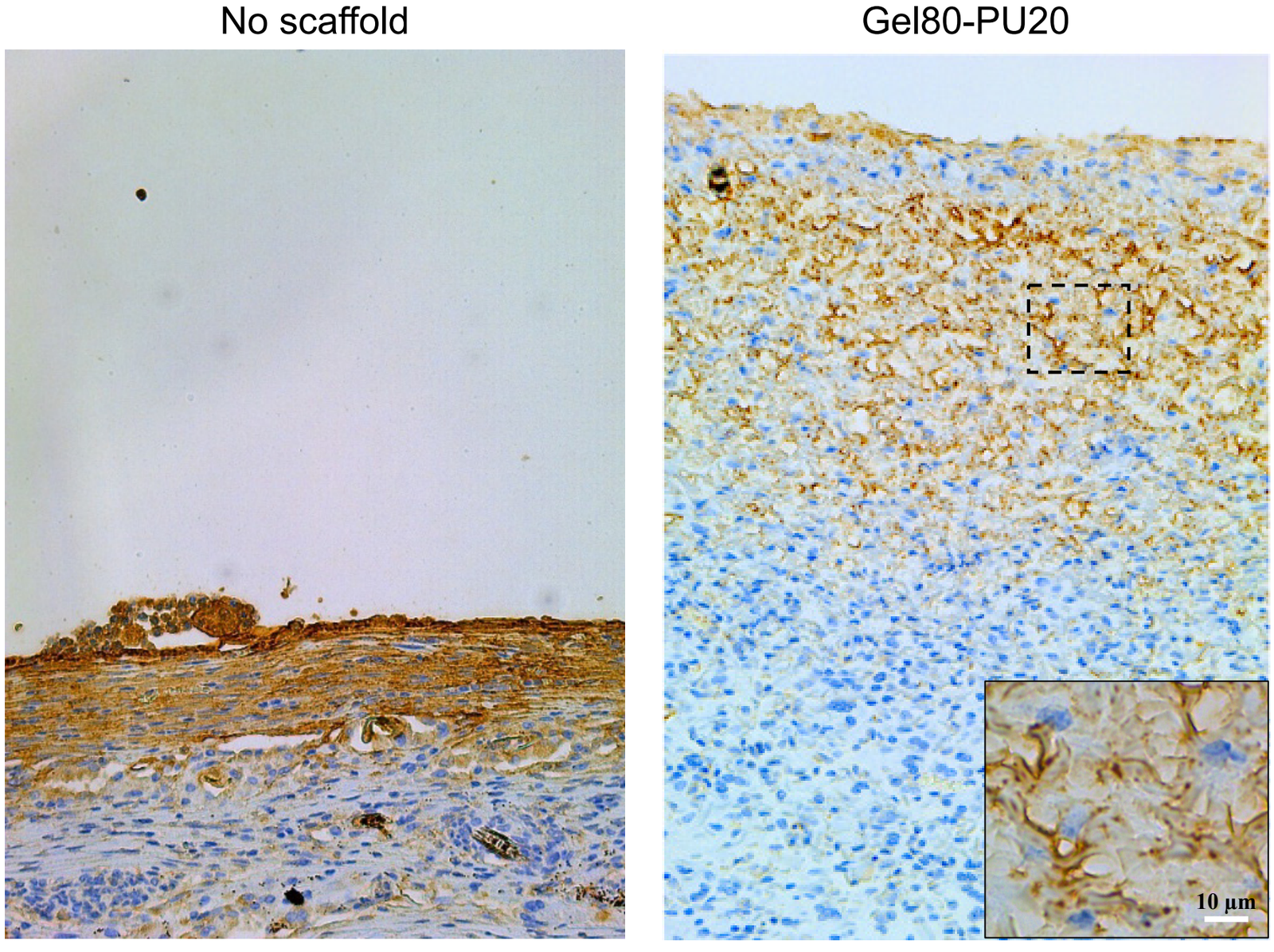
S9: %Degradation measurement in vivo. H&E staining of (**a**): electrospun Gel80-PU20 membranes and (**b**): DRM, after implantation on mice for 20 days. The green line encloses the initial scaffold area and the dashed blue line surrounds the residual scaffold after 20 days.



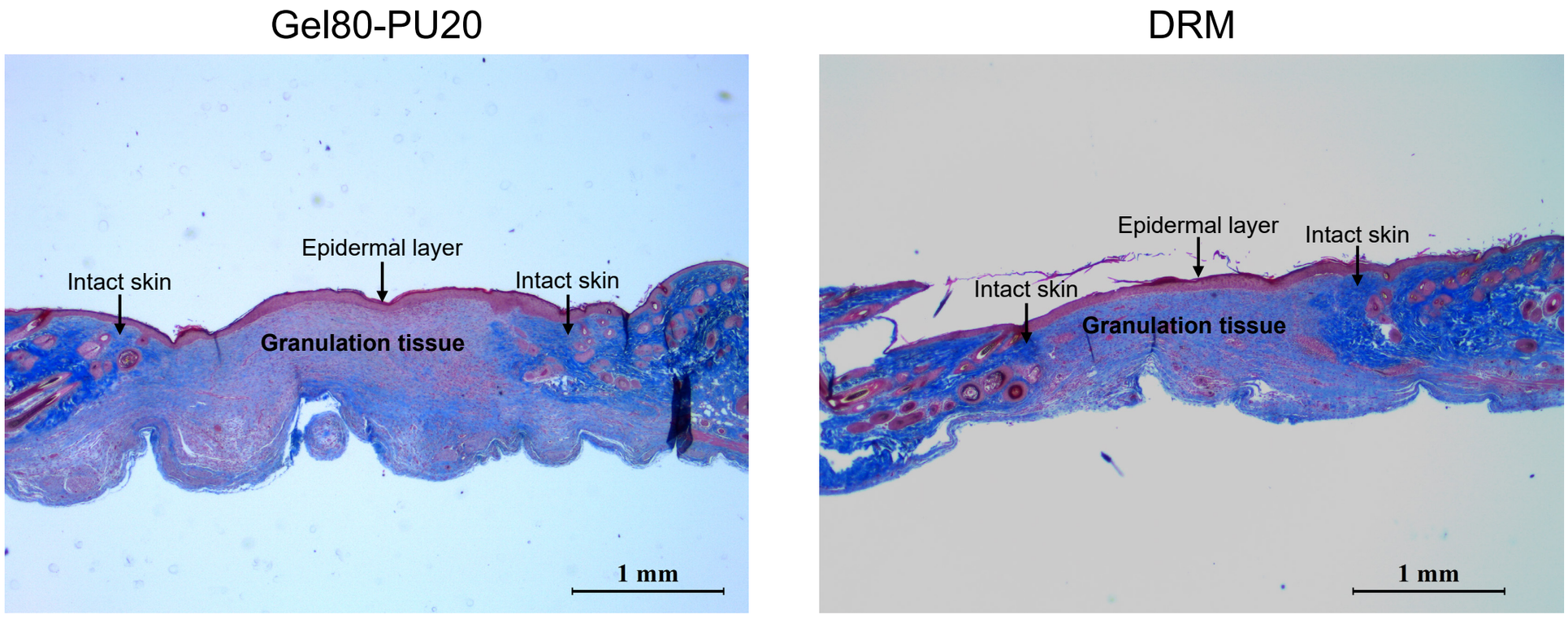
S10: F4/80 immunostaining for macrophages on the scaffolds after 20 days on the mice wound. Scale bar: 100 μm.



S11: IHC for macrophages (F4/80+ cells) on the scaffolds.



S12: Role of presence of scaffold in decreasing αSMA:
IHC for myofibroblasts (αSMA+ cells) on the wound without any scaffold and a wound covered with Gel80-PU20. Inset in Gel80-PU20 shows higher magnification image of the selected area.



S13: Trichrome staining of mice wounds closed in presence of scaffolds after 14 days without using of a dome.