Supporting Information for:

Osteon-mimetic 3D nanofibrous scaffold enhancing stem cell proliferation and osteogenic differentiation for bone regeneration

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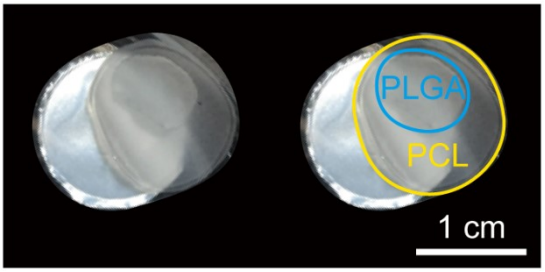

Figure S1. BL electrospun membranes composed of PCL and PLGA layers were deposited on gelatin hydrogel-coated cover slip which was placed on aluminum foil. After incubation in PBS at 37°C for 24 h, these two layers separated.

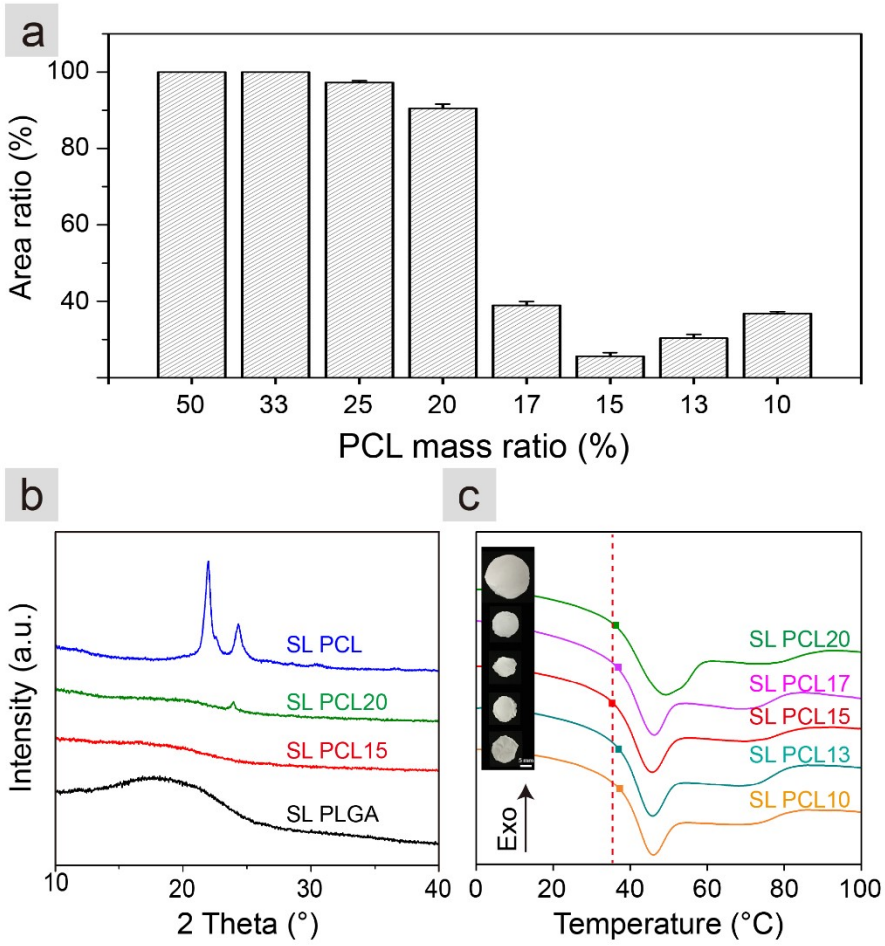

Figure S2. Characterizations of SL PLGA/PCL composite nanofibrous membranes of different compositions. (a) Area ratio of membranes after deformation at free-standing state in 75% ethanol at room temperature for 4 h. (b) Representative XRD patterns of as-electrospun membranes. (c) DSC first heating curves of as- electrospun SL PCL20, SL PCL17, SL PCL15, SL PCL13 and SL PCL10. (The marked point was Tg). (Insets were digital images of SL membranes after deformation and the diameter of as-electrospun membranes were 22 mm).

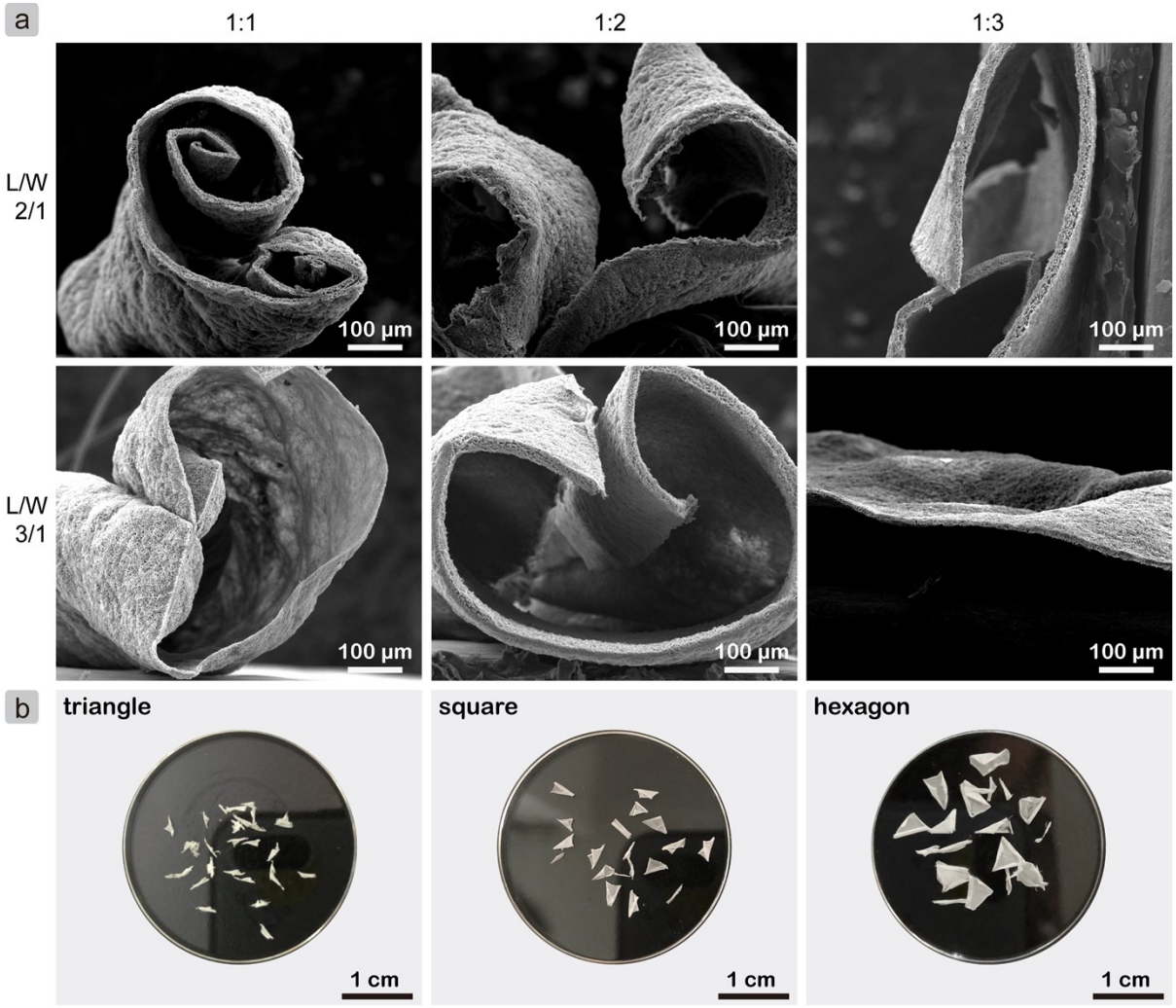

Figure S3. Optimization of layer thickness ratio and gross shape for BL membrane. (a) SEM images of cross section view for BL membrane with various layer thickness ratios of PCL15/PCL20 in rectangle shape of different length/width (L/W) ratios after immersion in PBS at 37°C for 24 h. For these BL membranes, the total thickness was fixed (The volume of electrospinning solutions was fixed at 200 μl); when cut into rectangles, the width was always 3 mm. (b) Digital images of BL membranes with layer thickness of PCL15/PCL20 as 1/1 in different shapes (Side lengths were fixed at 3 mm) after deformation.

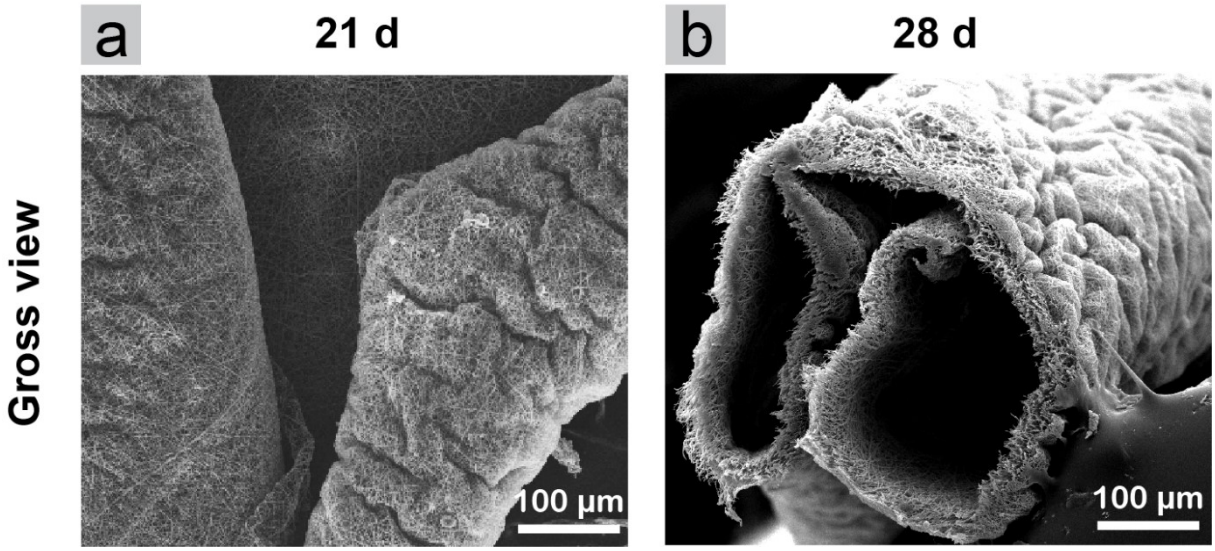

Fig. S4. SEM images of BLM after in vitro degradation for (a) 21 days and (b) 28 days. (PCL15 was the concave surface and PCL20 was the convex surface).

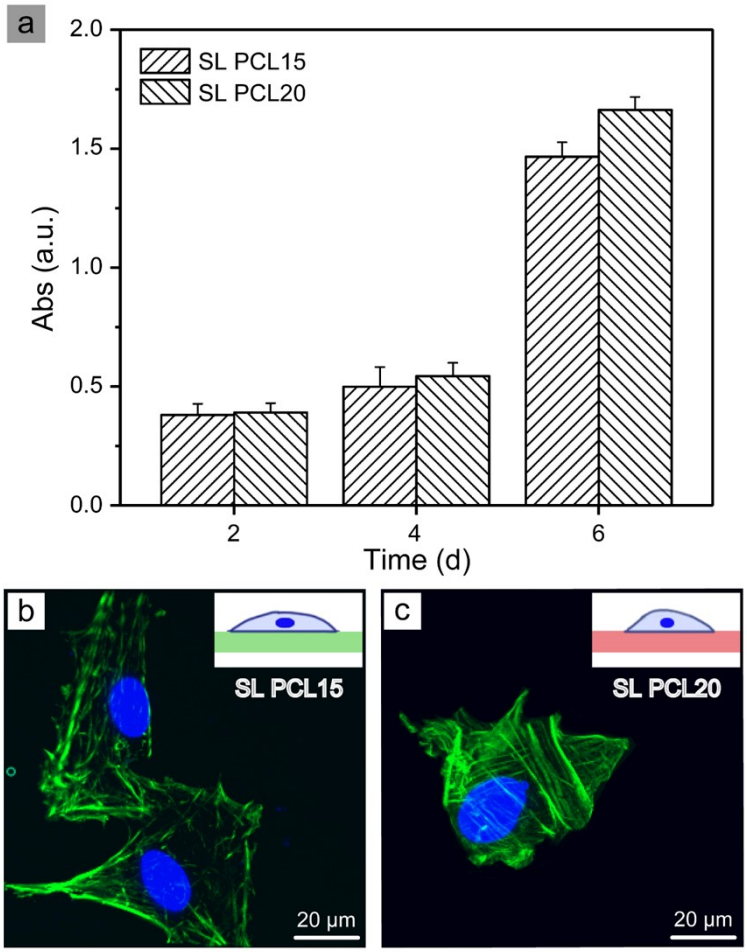

Figure S5. (a) Monitoring proliferation of rADSCs on SL membranes based on CCK-8 assay. Data = mean ± SD; n = 3. Representative CLSM images of F-actin (green) and nuclei (blue) for rADSCs on (b) SL PCL15 and (c) SL PCL20 membrane after 6 d in expansion medium.

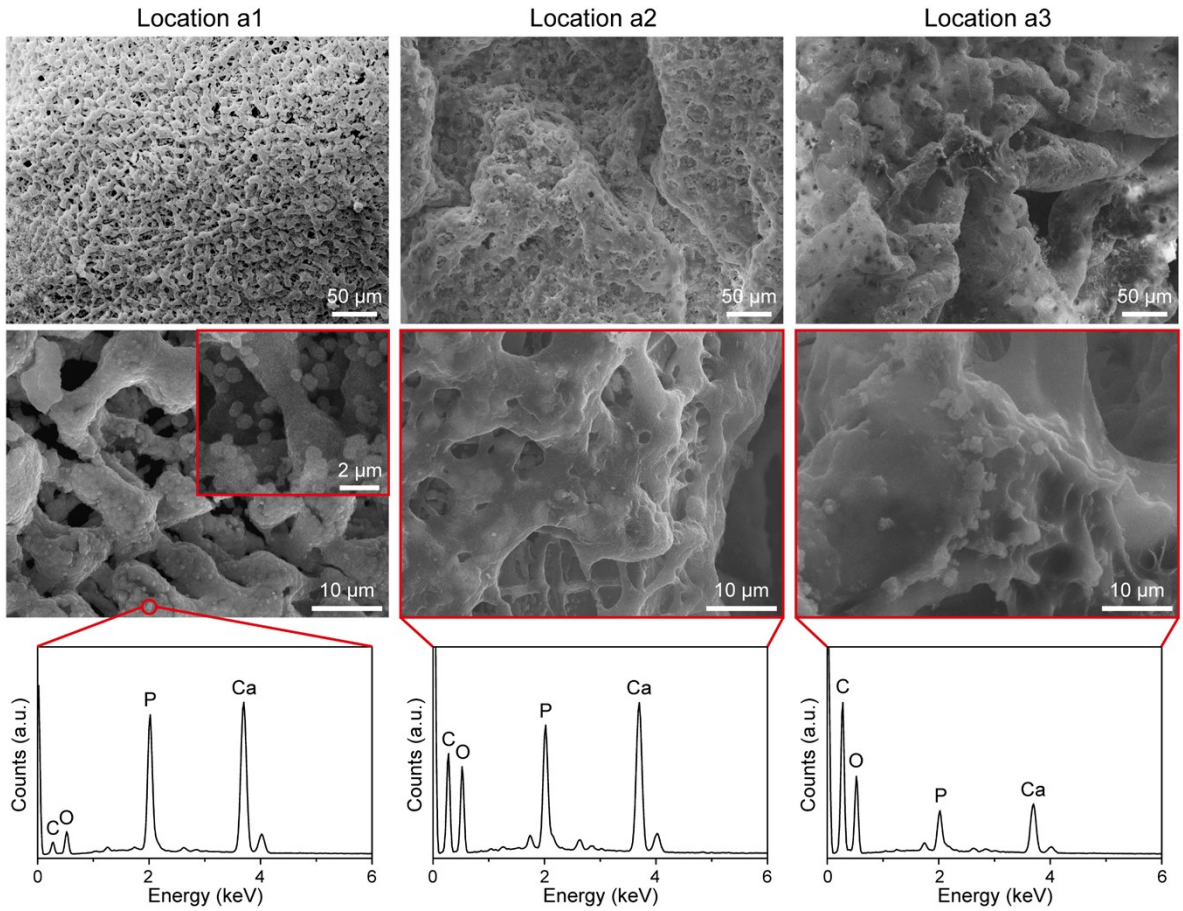

Figure S6. After *in vitro* osteogenic induction for 21 days, representative SEM images and corresponding EDX spectra (3rd row) of BL membranes.

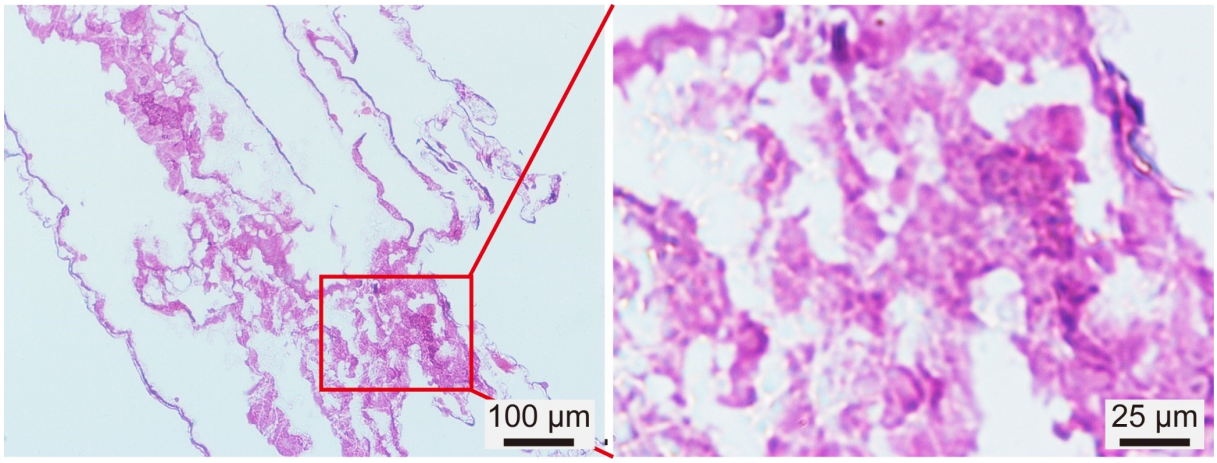

Figure S7. After *in vitro* osteogenic induction for 21 days, light microscope images of BL membranes after embedded in paraffin, sectioning and H&E staining.