Supporting information for

Fabrication and characterization of PCL/$CaCO_3$ electrospun composite membrane for bone repair

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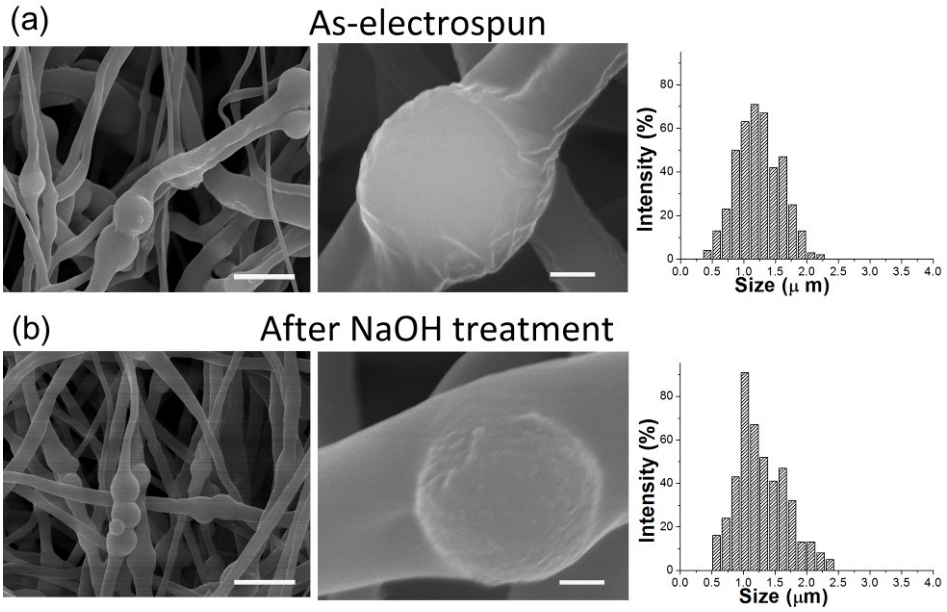

Fig. S1. SEM images and fiber diameter distribution of P-50 composite fibrous membranes before and after NaOH treatment. The scale bar in image at lower magnification is 4 μm and is 500 nm in image at higher magnification.

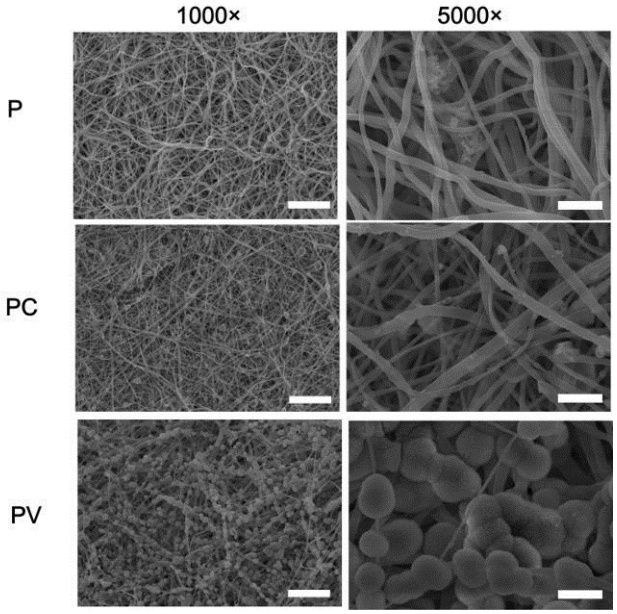

Fig. S2. Representative SEM images of composite fibrous membranes after soaking in SBF for 21 days. The left scale bar is 20 μm, the right is 4 μm. P is PCL fibrous membrane, PC is PCL composite membrane at calcite/PCL weight ratio of 50%, and PV is PCL composite membrane at vaterite/PCL weight ratio of 50%. Before soaking, the membranes were after NaOH treatment to expose the entrapped $CaCO_3$/casein microparticles and during the 21 days, SBF was not changed. There was significant more crystal deposition on PCL membrane with $CaCO_3$/casein than PCL membrane with calcite and PCL membrane.

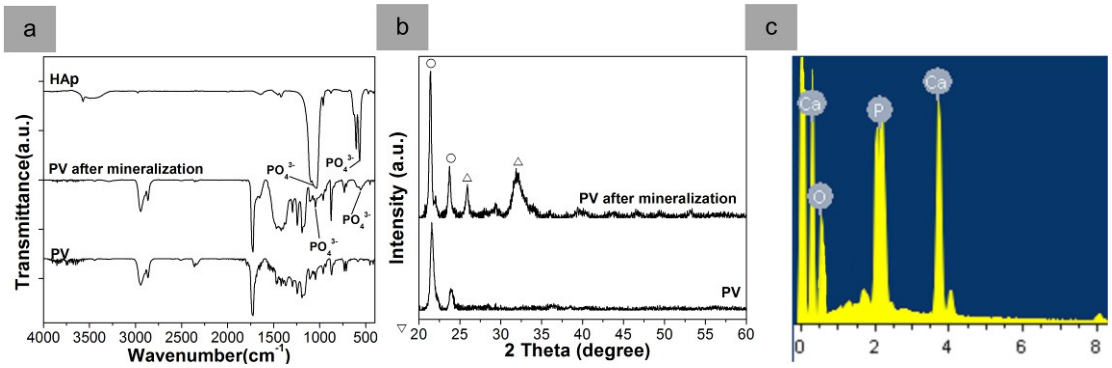

Fig. S3. (a) FTIR spectra of PV composite fibrous membranes before and after immersion in SBF for 21 days; (b) XRD patterns of PV membrane and PV membrane after incubated in SBF for 14 days, ○ indicating peaks belonging to PCL; (c) EDS spectrum of the agglomerates formed on the surface of PV composite fibrous membranes. After mineralization, two diffraction peaks indicated by Δ were present on XRD pattern, where these two peaks were assigning to hydroxyapatite (HAp)[1,2]; the absorption band of PO_4 was also observed on FTIR spectra[3].

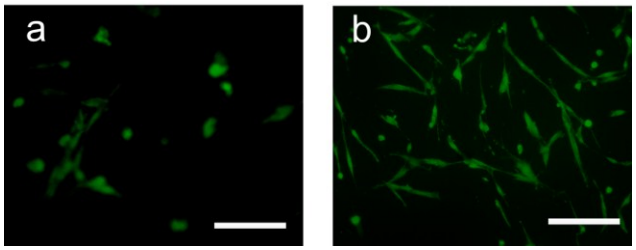

Fig. S4. Fluorescence microscope images of HMSCs growing on P-50 composite membranes for 5 days. (a) Before surface modification and (b) after surface modification. The scale bar is 200 μm.

References

1. K. K. Gupta, A. Kundan, P. K. Mishra, P. Srivastava, S. Mohanty, N. K. Singh, A. Mishra and P. Maiti, *Physical Chemistry Chemical Physics*, 2012, **14**, 12844-12853.
2. S. Jalota, S. B. Bhaduri and A. C. Tas, *Journal of Materials Science-Materials in Medicine*, 2006, **17**, 697-707.
3. Z. Xu, G. Liang, L. Jin, Z. Wang, C. Xing, Q. Jiang and Z. Zhang, *Journal of Crystal Growth*, 2014, **395**, 116-122.