**ADVANCED
FUNCTIONAL
MATERIALS**

Supporting Information

Injectable Peptide Decorated Functional Nanofibrous Hollow Microspheres to Direct Stem Cell Differentiation and Tissue Regeneration

Zhanpeng Zhang, Melanie J. Gupte, Xiaobing Jin, and Peter X. Ma*

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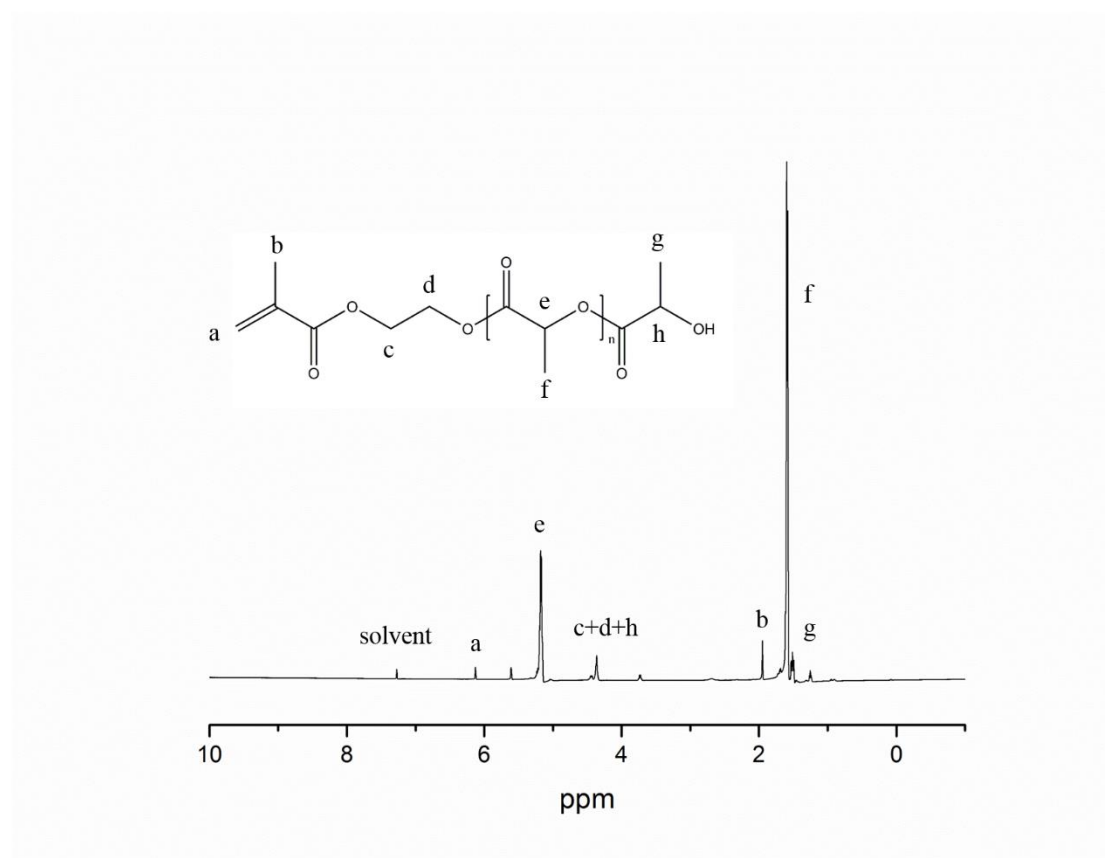*Zhanpeng Zhang, Melanie J. Gupte, Xiaobing Jin and Peter X. Ma[*]*

Figure S1. NMR spectrum of macromonomer HEMA-PLLA5. ^{1}H NMR (400 MHz, CDCl$_3$, δ): 6.10 (s, 2H, a), 5.17 (q, *J* = 8 Hz, 1H; e), 4.25 (m, 5H; c+d+h), 2.01 (s, 3H, b), 1.38 (d, J = 8Hz, 3H; f), 1.35 (d, J = 8Hz, 3H; g).
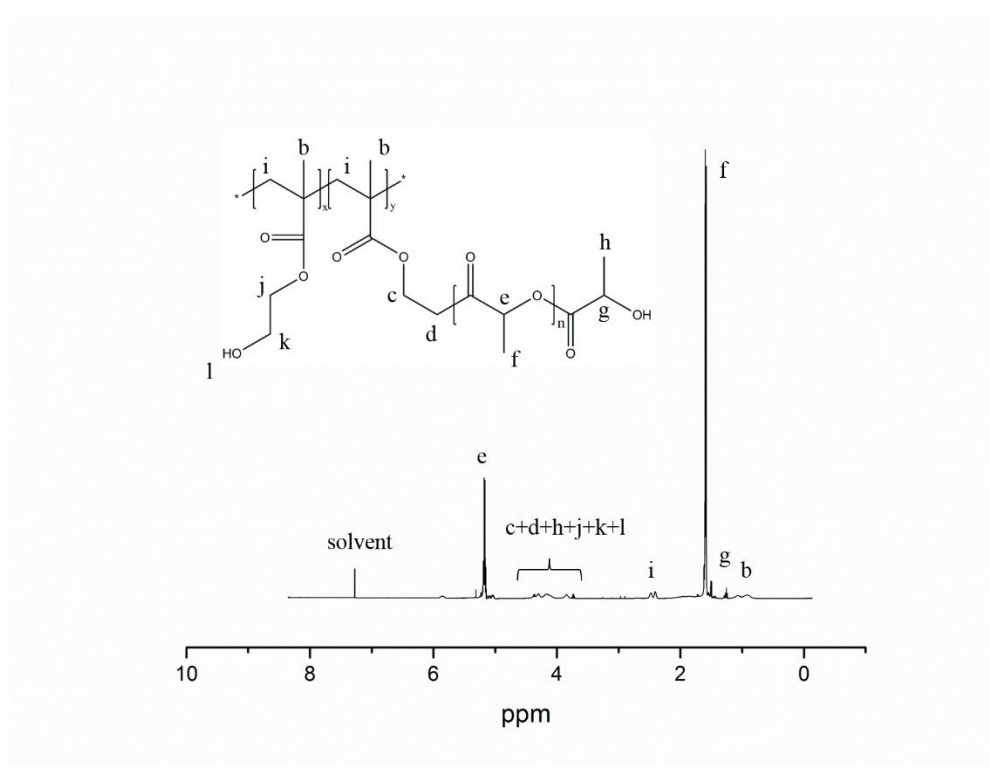
Figure S2. NMR spectrum of graft copolymer PHEMA10-g-PLLA5. ^{1}H NMR (400 MHz, CDCl$_3$, δ): 5.17 (q, *J* = 8 Hz, 1H; e), 4.30 (m, 10H; c+d+h+j+k+l), 2.41 (s, 2H, i), 1.58 (d, J = 8Hz, 3H; f), 1.35 (d, J = 8Hz, 3H; g) , 1.01 (s, 3H, b).
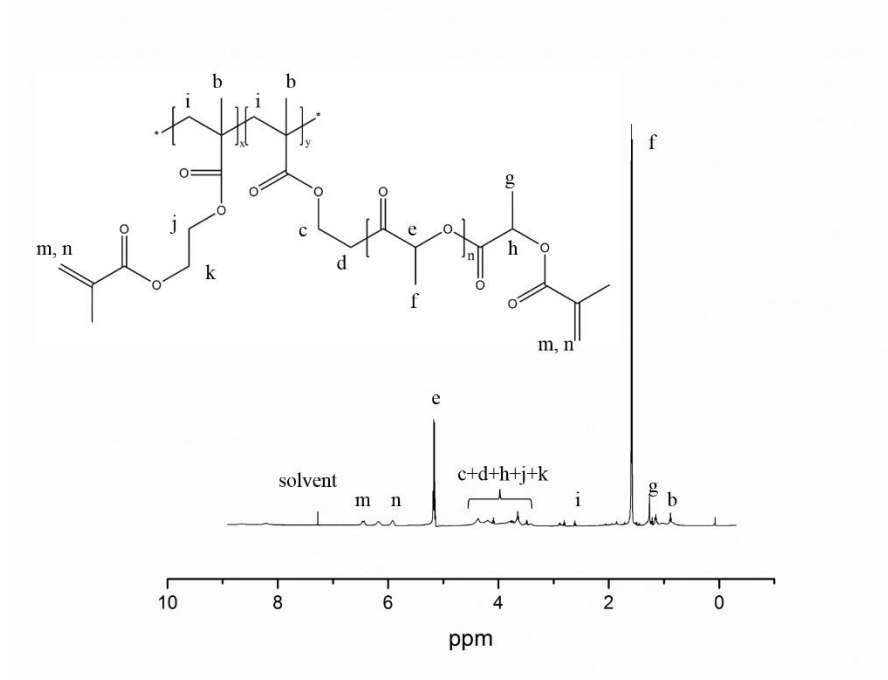

Figure S3. NMR spectrum of functionalized graft copolymer PHEMA-g-PLLA-alkene. ^{1}H NMR (400 MHz, CDCl$_3$, δ): 6.11 (m, 3H, m+n), 5.17 (q, *J* = 8 Hz, 1H; e), 4.10 (m, 9H; c+d+h+j+k), 2.62 (s, 2H, i), 1.65 (d, J = 8Hz, 3H; f), 1.30 (d, J = 8Hz, 3H; g) , 0.98 (s, 3H, b).
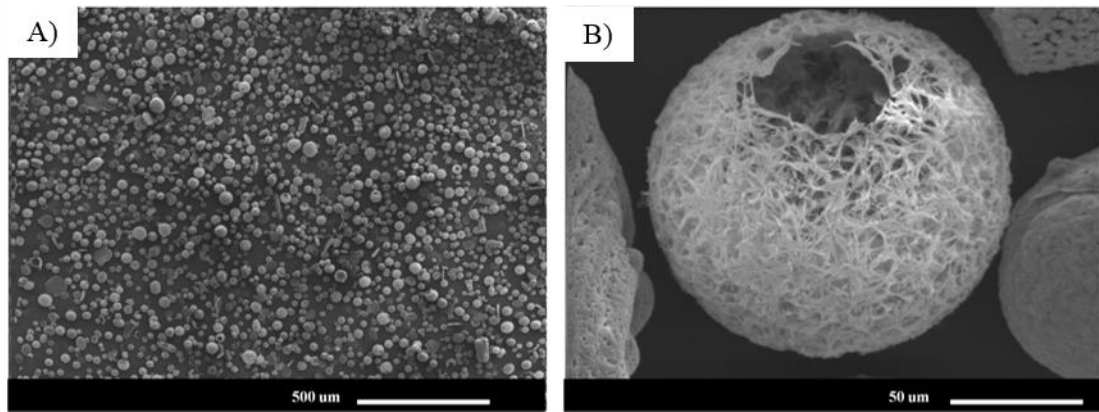
Figure S4. SEM of FNF-HMS after click reaction with GF-mimicking peptide CM10.
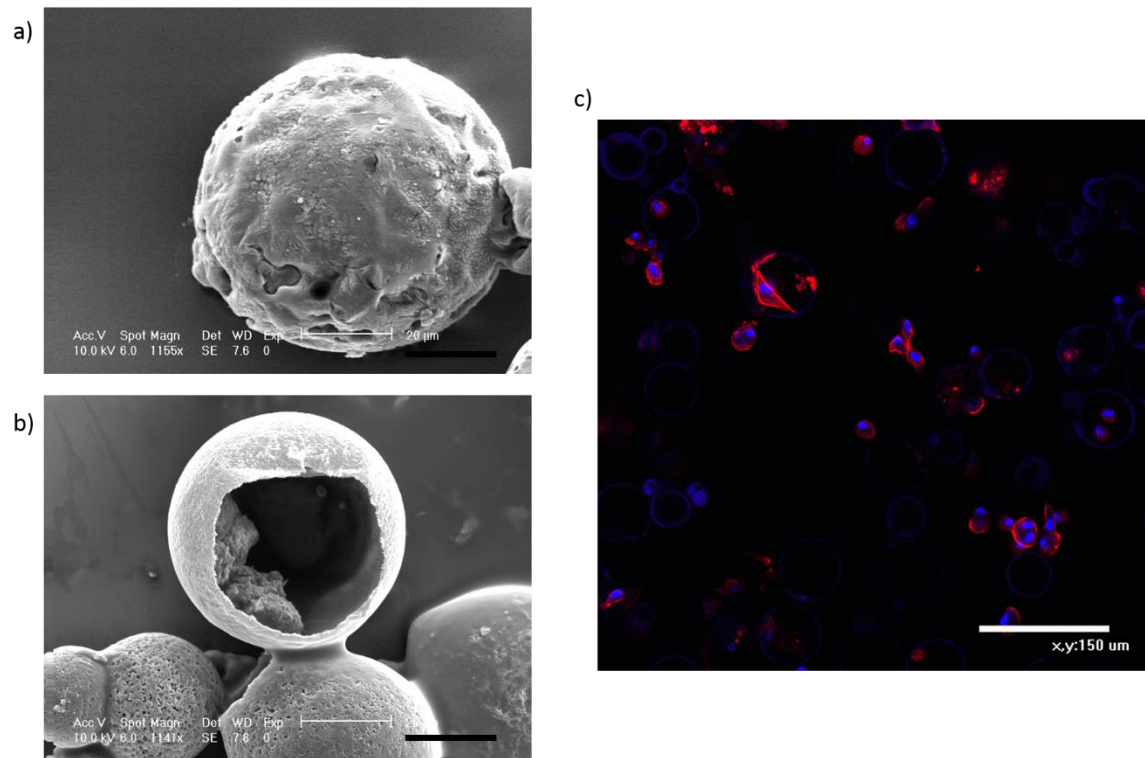

Figure S5. a, b) SEM graphs of BMSCs seeded on FNF-HMS for 1 day. BMSCs attached to both the outside (a) and inside (b) of the microspheres. Scale bar: 20 um. c) Confocal images of BMSCs seeded on FNF-HMS for 1 week, showing that many cells were able to adhere to the inside of the microspheres. Blue: nuclei; red: F-actin.