

Supporting information for

In Vitro Culture and Directed Osteogenic Differentiation of Human Pluripotent Stem Cells on Peptides-Decorated Two Dimensional Microenvironment

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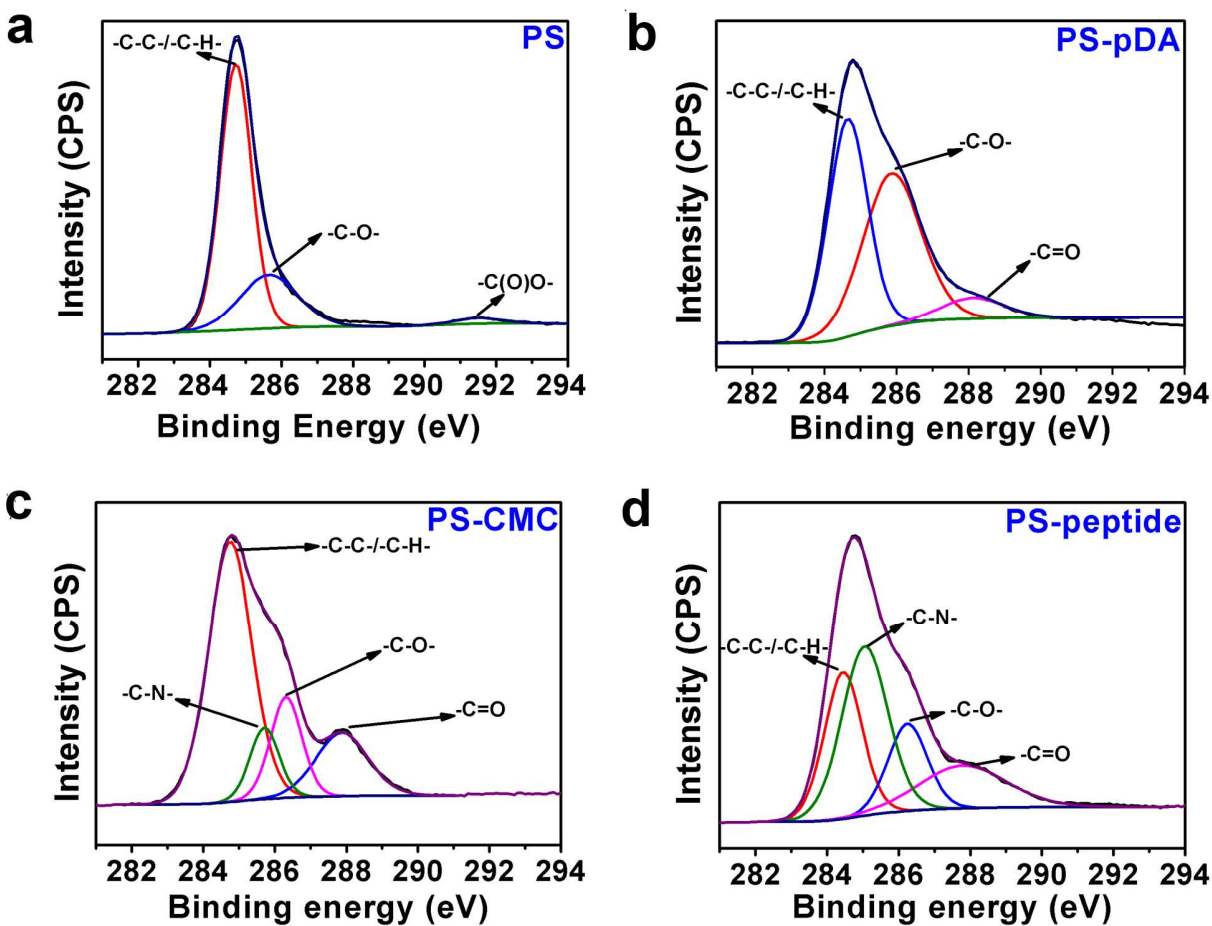


Fig. S1. High-resolution spectra of carbon peaks for pristine PS (a), PS-pDA (b), PS-CMC (c) and PS-peptide (d) substrates.

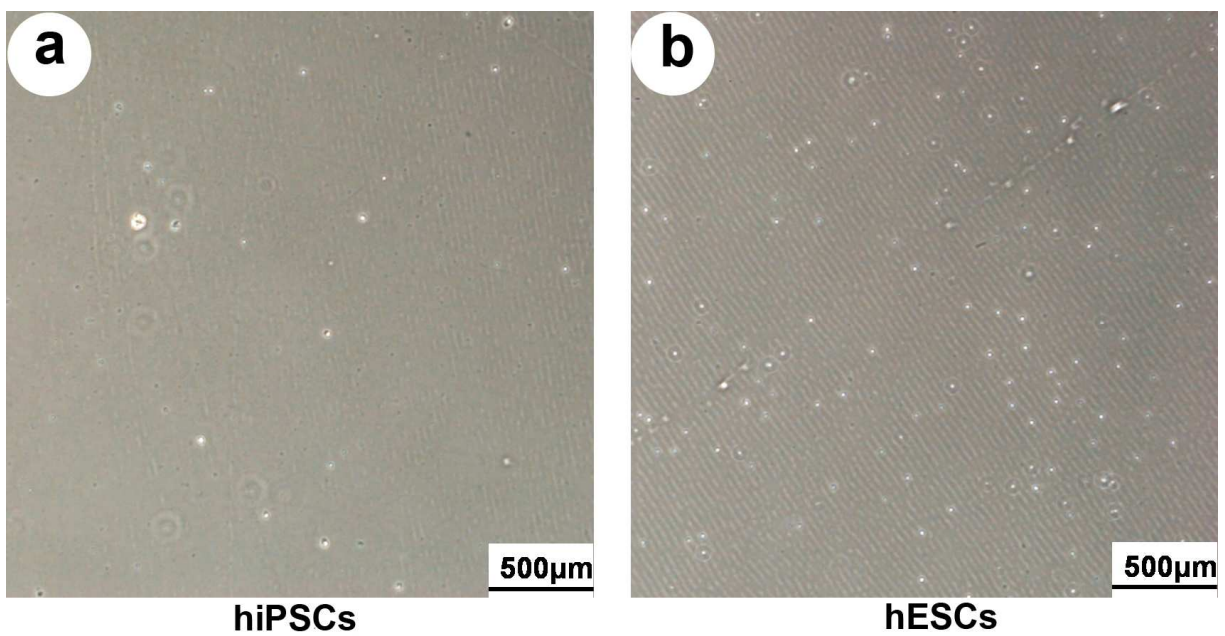


Fig. S2. The hiPSCs (a) and hESCs (b) morphology on the pure CMC substrate (PS-CMC) at day 0.

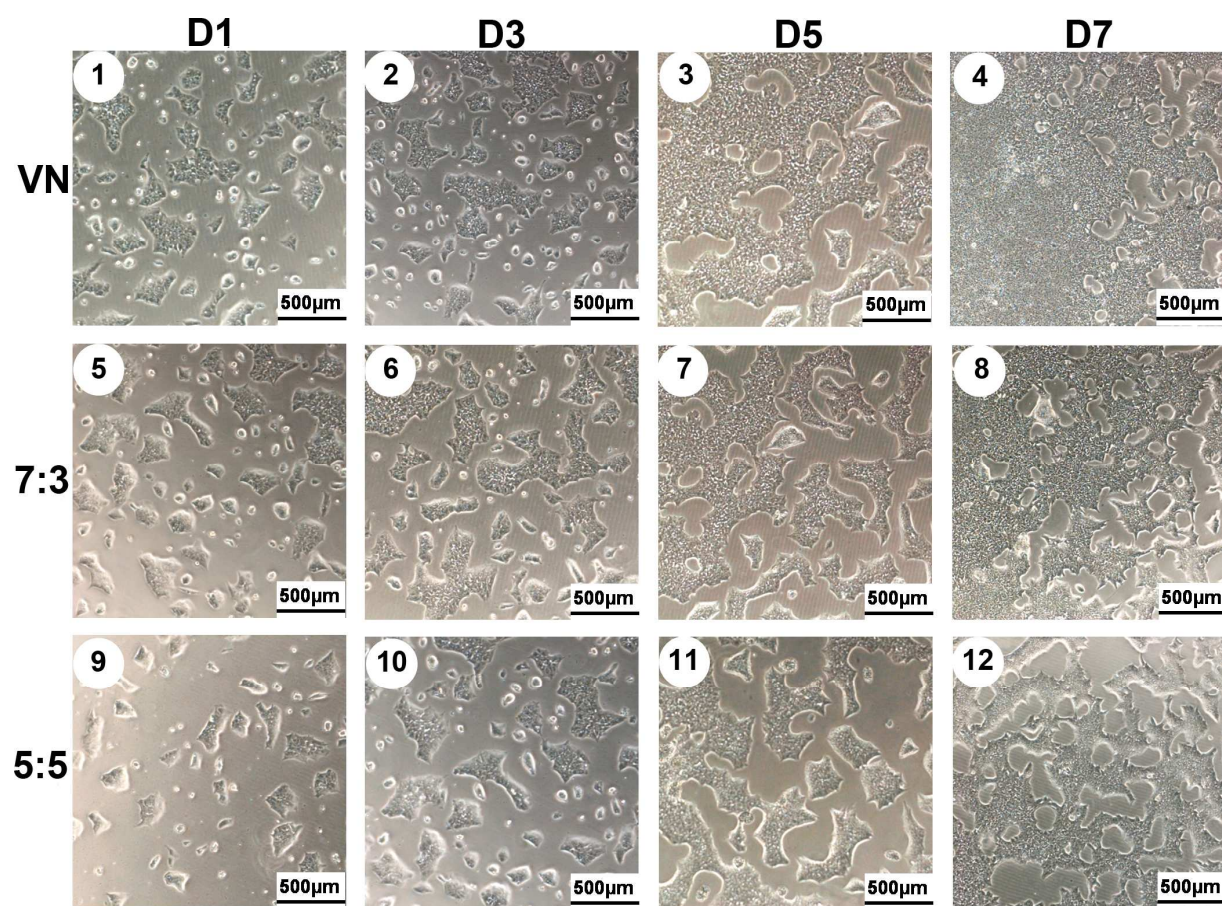


Fig. S3. The hiPSCs morphology of different peptides-decorated surfaces (PS-VN₁₀, PS-VN₇/BFP₃, and PS-VN₅/BFP₅) from day 1 to day 7.

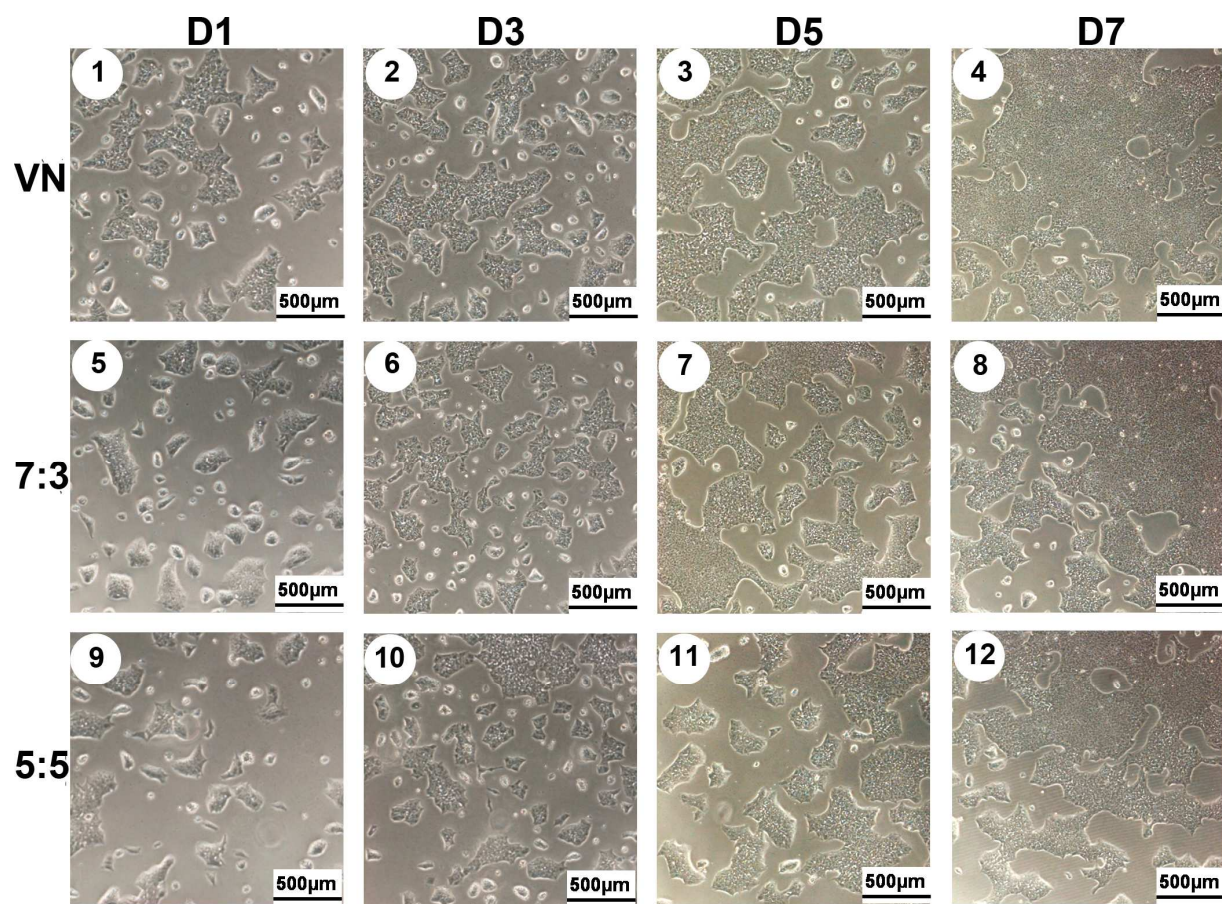


Fig. S4. The hESCs morphology of different peptides-decorated surfaces (PS-VN₁₀, PS-VN₇/BFP₃, and PS-VN₅/BFP₅) from day 1 to day 7.

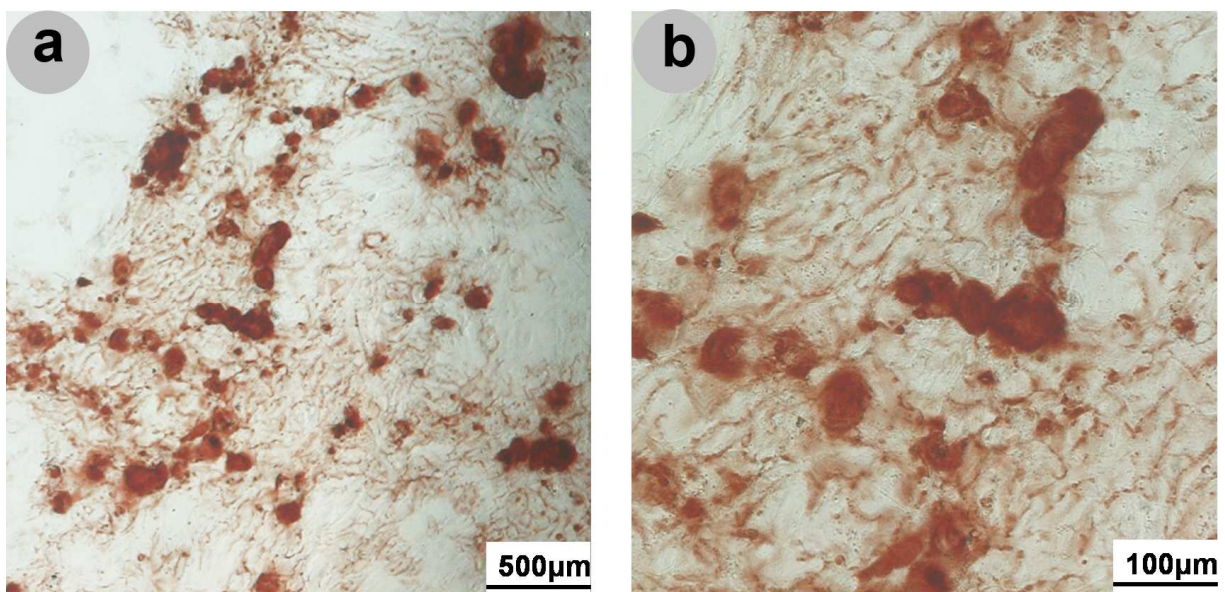


Fig. S5. Bone matrix mineralization of hMSCs treated with BMP-7 after inducing for 28 days *in vitro*.

Table S1. Primer sequence (5'-3') for the quantitative real-time PCR.

Name	Forward primer	Reverse primer	Product size (bp)
GAPDH	CGACAGTCAGCCGCATCTT	CCAATACGACCAAATCCGTTG	193
OCT-4	GCTCGAGAAGGATGTGGTCC	CGTTGTGCATAGTCGCTGCT	81
Nanog	GCAGAAGGCCTCAGCACCTA	AGGTTCCCAGTCGGGTTCA	81
Runx2	AGGAATGCGCCCTAAATCACT	ACCCAGAAGGCACAGACAGAAG	82
Colla1	AGACACTGGTGCTAAGGGAGAG	GACCAGCAACACCATCTGCG	182

Table S2. Elemental composition of the pristine PS, PS-pDA, PS-CMC, and PS-peptide substrates determined by XPS analysis.

Elements	pristine PS	PS-pDA	PS-CMC	PS-peptide
C 1s	72.96 %	63.56 %	58.91 %	40.87 %
O 1s	27.04 %	28.43 %	30.83 %	41. 70 %
N 1s	0 %	8.01 %	10.26 %	14.65 %
Na 1s	0 %	0 %	0 %	2.78 %

Table S3. Summary of surface properties of the decorated PS plates determined by means of AFM Peak Force QNM tapping in air.

Substrate	Ra (nm)	Young's modulus (GPa)	Peak force set point (nN)
PS-pDA	195.2	4.37	45
PS-CMC	276.8	1.44	14
PS-peptide	294.2	1.42	14