Supporting Information

Antimicrobial peptide-loaded Pectolite Nanorods for Enhancing Wound-healing and Biocidal Activity of Titanium

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KEYWORDS $NaCa_2HSi_3O_9$ *nanorods; pectolite coatings; collagen I; antimicrobial peptide; drug eluting coatings; cytocompatibility*

Sample	Element composition (At%)					
	O	Na	Si	P	Ca	Ti
NCS	57.3	11.3	18.3	0.7	10.7	1.4
NCS-C	54.7	11.4	18.9	0.8	10.4	1.6
NCS-C-P	56.1	10.9	18.8	0.7	9.8	1.8
NCS-CA	56.7	10.1	17.5	0.5	9.9	1.5
NCS-CA-P	56.3	11.6	16.7	0.5	9.1	1.6

Table S1. Elemental compositions detected on different coatings obtained by EDX.

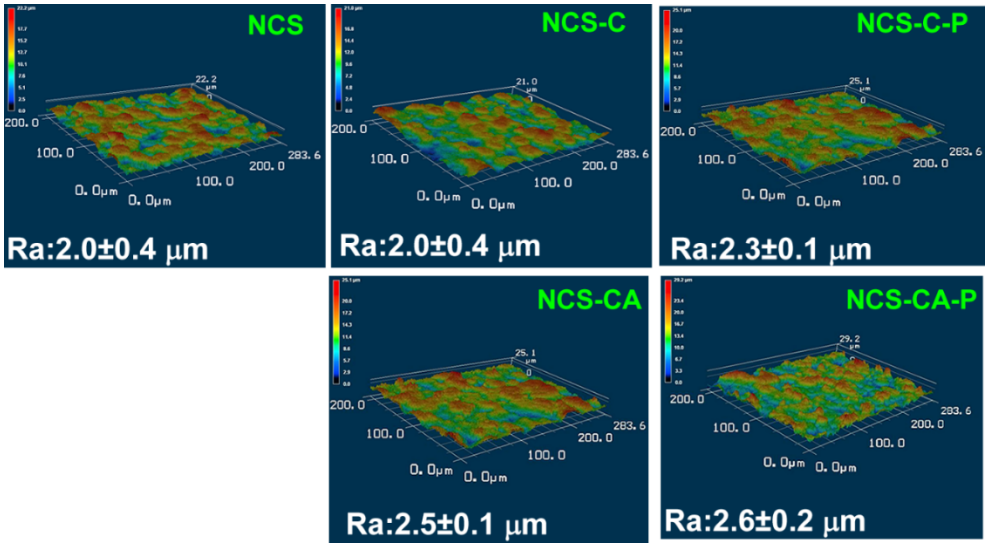

Figure S1. Laser confocal images of different surfaces, average surface roughness (Ra) were obtained for each sample. No significant change in roughness is observed due to the collagen shell (with and without AMP).

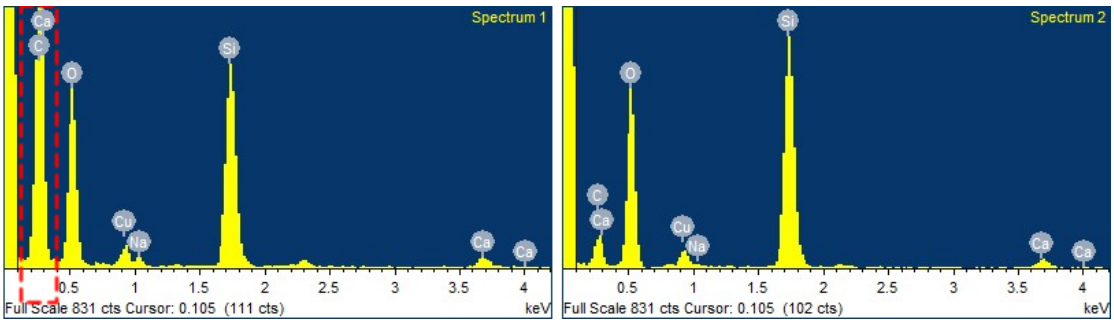

Figure S2. EDX patterns taken from the different areas in Figure 4(d): Spectrum 1 is corresponding to

the outer layer (marked with square 1), spectrum 2 is corresponding to inner of the nanorod (marked with square 2). The peak strength of C is higher in square 1 than that in square 2, indicating the thin layer of 10 nm is consisted of Col-I with AMP.

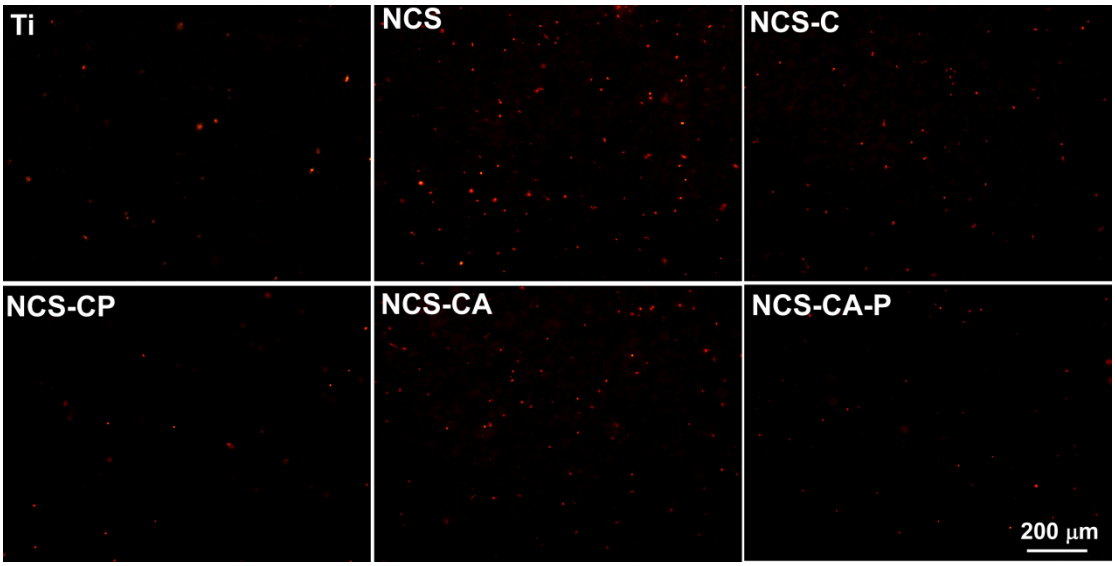

Figure S3. Fluorescence images of dead hFOB1.19 cells on different surfaces after culture 1 day. The dead cells were stained by Live/dead viability/cytotoxicity kit (Invitrogen, Eugene, OR) according to the operation manual.

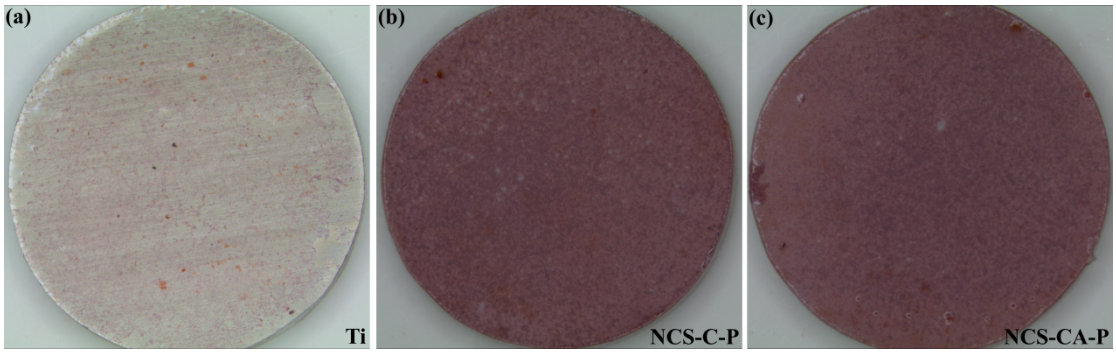

Figure S4. Staining pictures of ECM mineralization of hFOB1.19 incubated on different surfaces for 14 days. ECM mineralization of osteoblasts was analyzed using Alizarin Red staining. After 14 days of incubation, cells were fixed in 75% ethanol for 1 h, and subsequently stained with 2% Alizarin Red (Sigma, USA) solution for 30 min. Afterwards, the samples were washed with distilled water until the absence of color in the distilled water.

gene	forward primer sequence(5′−3′)	reverse primer sequence(5′−3′)
ALP	ACTGGTACTCAGACAACGAGAT	ACGTCAATGTCCCTGATGTTATG
Runx2	TGGTTACTGTCATGGCGGGTA	TCTCAGATCGTTGAACCTTGCTA
OPN	TTTACAACAAATACCCAGATGC	TTTACAACAAATACCCAGATGC
OCN	TCCTGAAAGCCGATGTGGT	AGGGCAGCGAGGTAGTGAA
Col-I	AGACGAAGACATCCCACCAATC	AGATCACGTCATCGCACAACA
GAPDH	CCACCCTGTTGCTGTAGCC	CCCACTCCTCCACCTTTGA

Table S2. The sequences of specific primer sets for qRT-PCR indicating expression of different osteogenic markers.

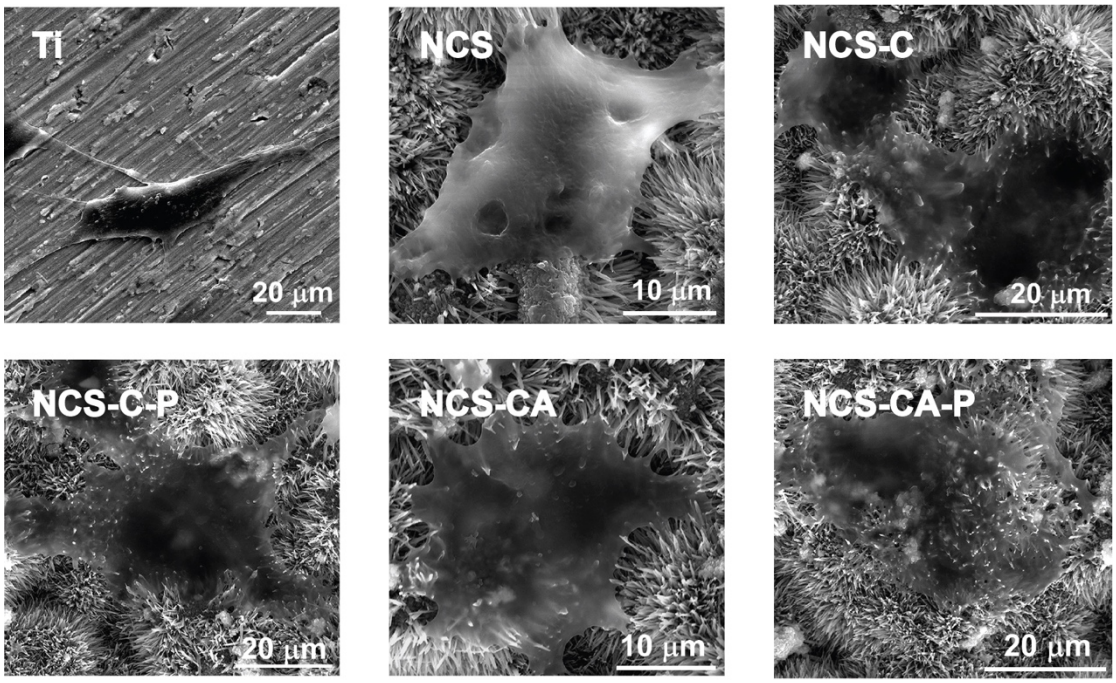

Figure S5. SEM images of osteoblasts after 24 h of culture on different surfaces. Cells show polygonal morphologies and organized actin bundles on collagen coated nanorods indicating enhanced cell adhesion.