Electronic Supplementary Information

Trace fluorine substituted calcium deficient hydroxyapatite with excellent osteoblastic activity and antibacterial ability

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Table. S1 The lattice constants, crystal size, and strain of the FHA powders were calculated by XRD refinement method using Jade 5.0 software, considering the strongest three peaks (211), (112), and (300)

Samples	Lattice constants		Size(Å)	Strain(%)
	a-axis(Å)	c-axis(Å)		
HA	9.4187	6.8844	276	0.5292
F0.002	9.4185	6.8841	275	0.5240
F0.02	9.4174	6.8847	273	0.5180
F0.2	9.4108	6.8850	264	0.4816

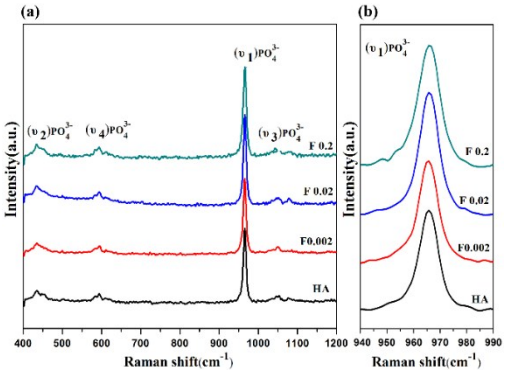

Fig. S1 (a) Raman spectra for obtained FHA powders with different fluorine contents; (b) the υ_1 mode of the PO_4^{3-} became sharper with the increase of the F contents.

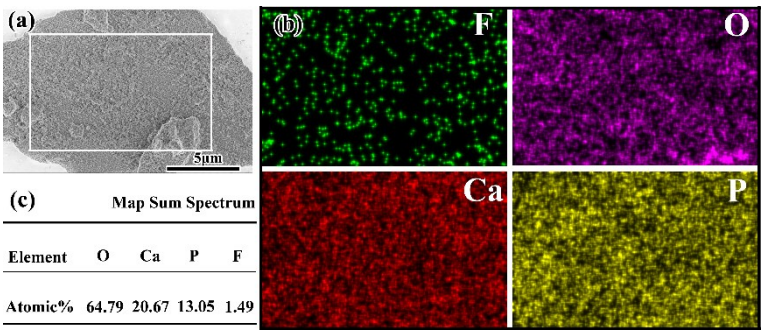

Fig. S2 (a) FESEM image of the selected zone and its (b) element mapping and (c) elemental composition on sample F0.2. The atomic ratio of Ca/P was 1.58.

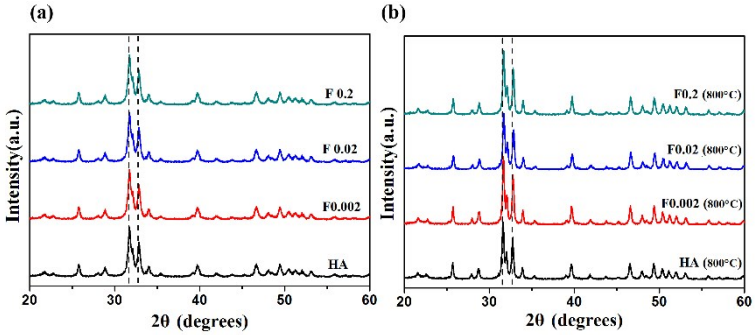

Fig. S3 XRD spectra of the FHA pellets (a) before and (b) after calcination at 800 for 2 h. The FHA samples showed well-crystalized phases before calcination and their crystallinity increased after calcination at 800°C for 2 h.

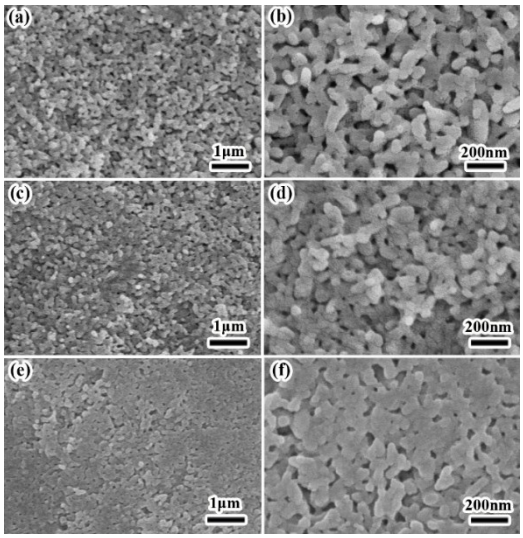

Fig. S4 SEM images of the surface morphology for FHA pellets: (a-b) HA, (c-d) F0.02, (e-f) F0.2.

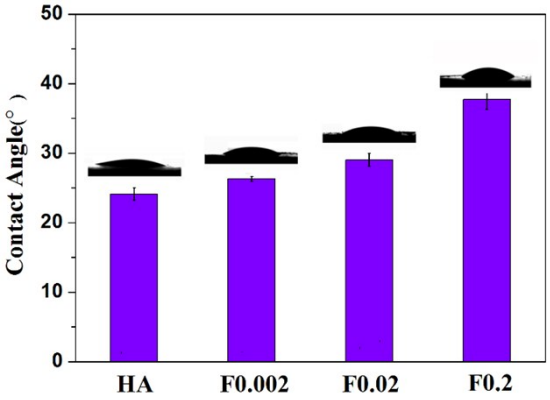

Fig. S5 Water contact angles of FHA pellets. With the increase of F content in the specimens, the contact angle increased from 24.1° to 37.7°. The contact angle of F0.02 were not significantly different from HA.

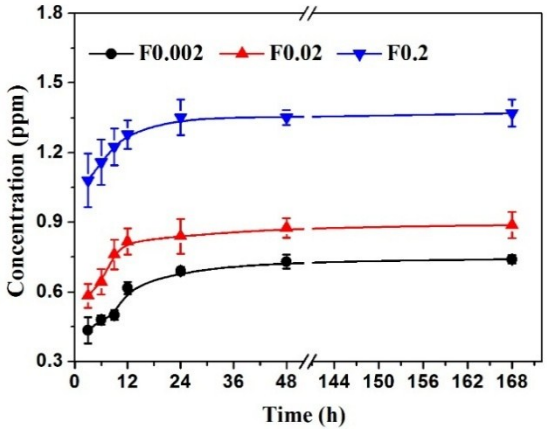

Fig. S6 The F release profile of the FHA pellets in PBS.

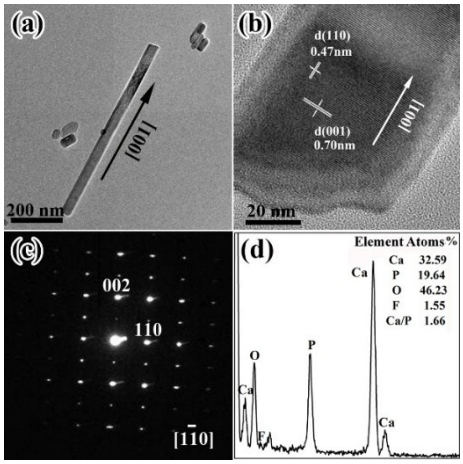

Fig. S7 TEM analysis of sample F2: (a) TEM image; (b) HRTEM image; (c) SEAD pattern and (d) EDS spectra. TEM images showed that F2 exhibited rod-like nanoparticles, and the Ca/P molar radio of F2 was about 1.66.