

## Supporting Information

### Biomimetic mineralization of Hydroxyapatite Crystal in the Presence of Zwitterionic Polymer

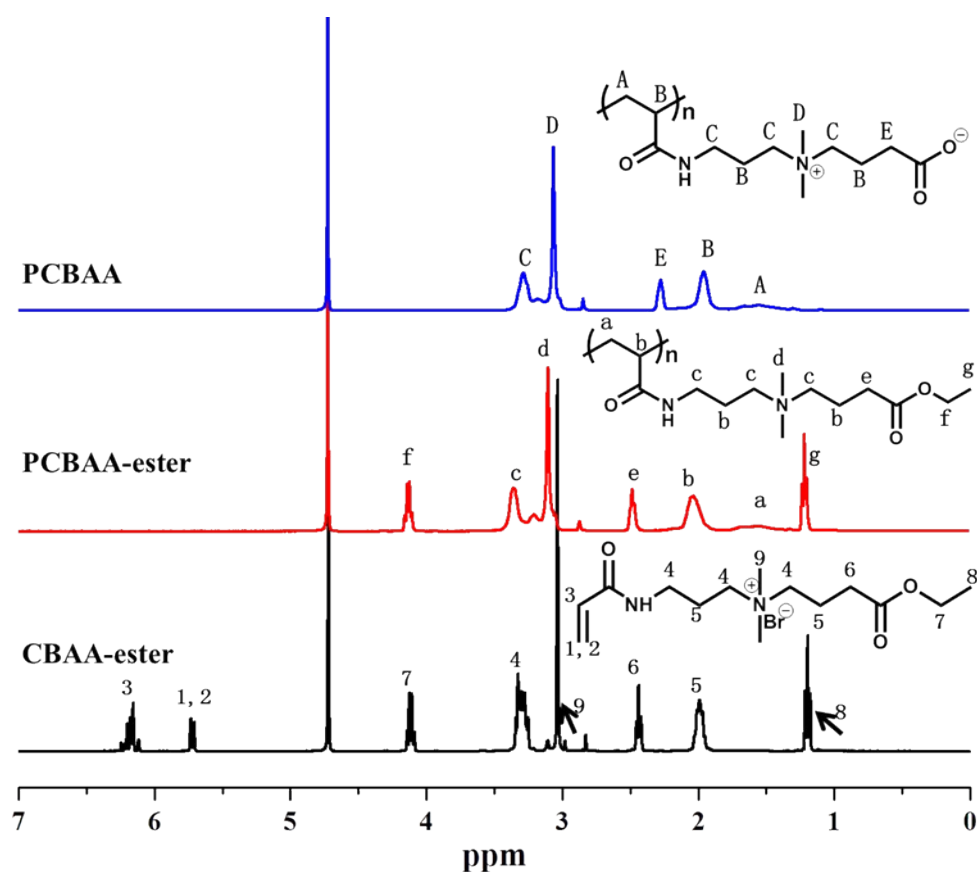
Meng Xu<sup>a</sup>, Feng Ji<sup>a</sup>, Zhihui Qin<sup>a</sup>, Dianyu Dong<sup>a</sup>, Xinlu Tian<sup>a</sup>, Rui Niu<sup>a</sup>, Da Sun<sup>d</sup>, Fanglian Yao<sup>\*,a,b</sup>, Junjie Li<sup>\*,c</sup>

*a) School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China. Email: yaofanglian@tju.edu.cn.*

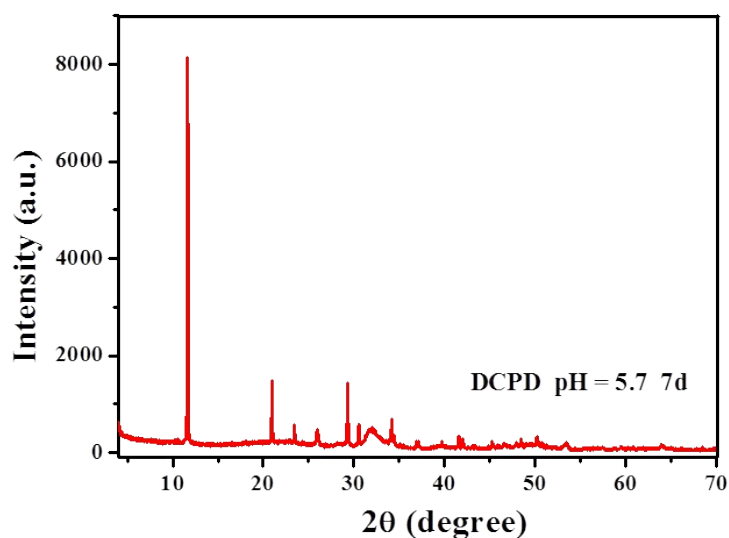
*b) Key Laboratory of Systems Bioengineering of Ministry of Education. Tianjin University, Tianjin, 300072, China.*

*c) Department of Advanced Interdisciplinary Studies, Institute of Basic Medical Sciences and Tissue Engineering Research Center, Academy of Military Medical Science, Beijing 100850, China. Email: li41308@aliyun.com.*

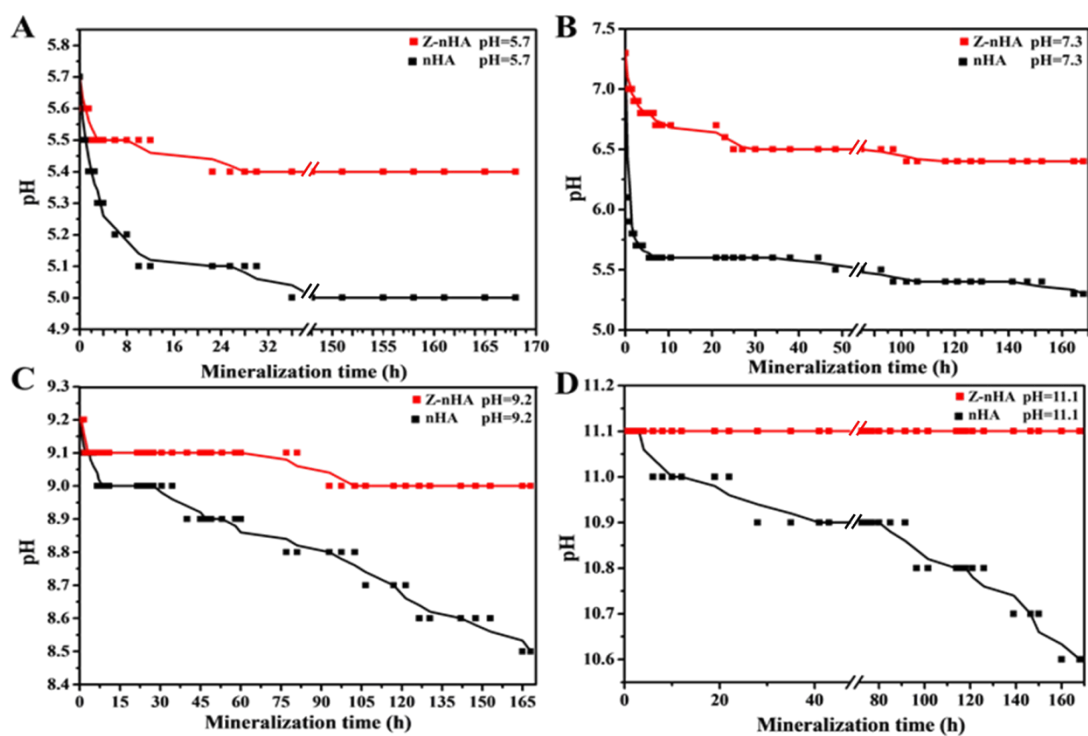
*d) Department of Biomedical Engineering, Case Western Reserve University, Cleveland, OH 44106, USA*



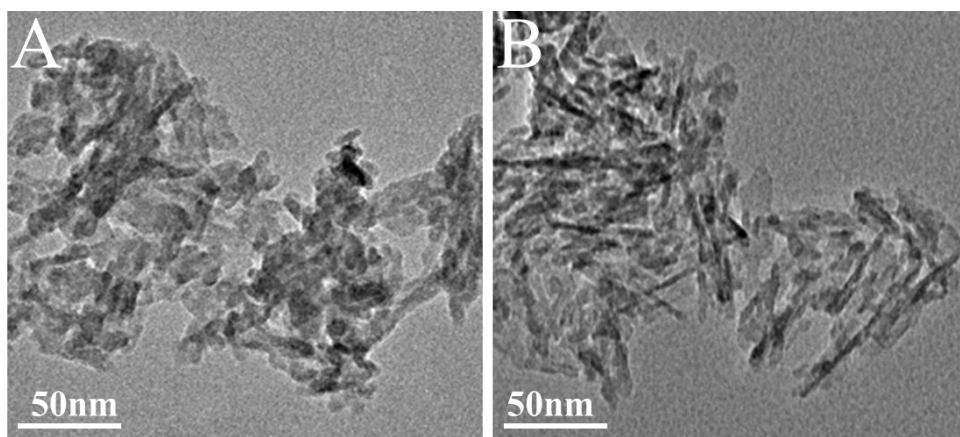
**Figure S1.** <sup>1</sup>H NMR spectra of CBAAs-ester, PCBAA-ester and PCBAA.



**Figure S2.** XRD spectra of nHA generated in water at 7 d at pH = 5.7.



**Figure S3.** The variation of pH value along time with and without PCBAA at values of (A) 5.7, (B) 7.3, (C) 9.2 and (D) 11.1.



**Figure S4.** TEM images of nHA crystals synthesized in 10 g/L PCBAA solution after different reaction time at 37 °C: (A) 72 h, (B) 120 h.

**Table S1.** The average sizes of *c*-axis and *a*-axis calculated from (002) and (300) faces of apatite respectively at different mineralization time.

Mineralization Time (h)	Crystal Size (nm)		
	<i>c</i> -axis	<i>a</i> -axis	<i>c/a</i>
0.5	27.23	9.40	2.90
2	31.50	9.57	3.29
5	23.57	9.37	2.52
12	15.13	7.60	1.99
24	16.17	23.07	0.70
72	16.43	23.83	0.69
120	18.90	27.33	0.69
168	19.33	19.91	0.97