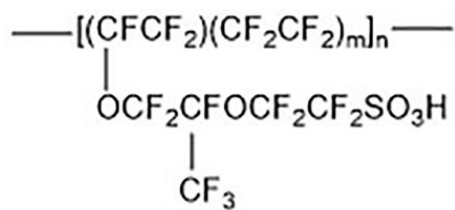


## **Electronic Supplementary Information**

### **Formation and Phase Evolution of Calcium Phosphates Modulated by Ion Exchange Ionomer Nafion**

Shuquan Sun, Qixuan, Chen, and Qijun Song\*

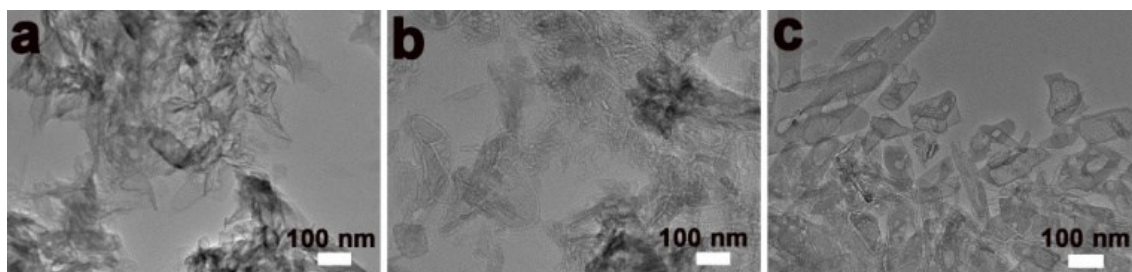
International Research Center for Photoresponsive Molecules and Materials, School of Chemical  
and Material Engineering, Jiangnan University, 1800 Lihu Road, Wuxi, Jiangsu Province  
214122, P.R.China



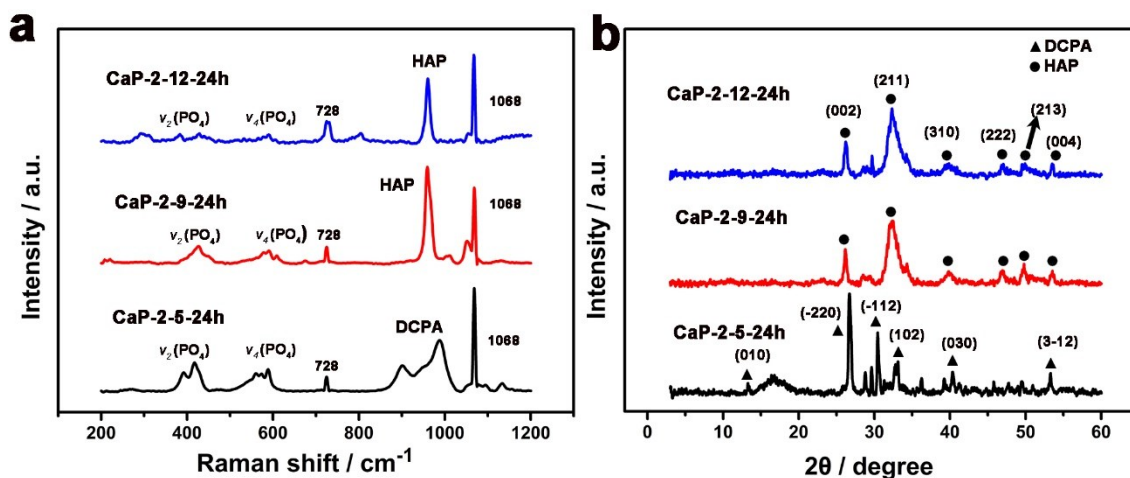
**Figure S1.** The chemical structure of Nafion.

**Table S1.** Preparation conditions of calcium phosphates (CaPs) in the assistance of Nafion.

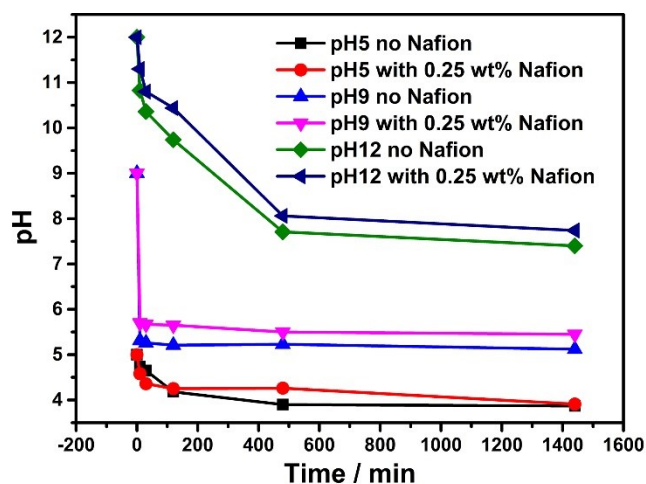
Sample	Nafion (by weight)	[Ca <sup>2+</sup> ] (M)	[PO <sub>4</sub> <sup>3-</sup> ] (M)	pH	Incubating time (h)
CaP-1-9-2h	0.1 wt%	0.1	0.1	9	2
CaP-2-9-2h	0.25 wt%	0.1	0.1	9	2
CaP-3-9-2h	0.5 wt%	0.1	0.1	9	2
CaP-0-9-2h	0	0.1	0.1	9	2
CaP-4-9-10min	0.25 wt%	0.1	0.2	9	10min
CaP-5-9-10min	0.25 wt%	0.15	0.15	9	10min
CaP-6-9-10min	0.25 wt%	0.2	0.1	9	10min
CaP-0-5	0	0.1	0.1	5	Ranged from 10min to 24h
CaP-0-9	0	0.1	0.1	9	Ranged from 10min to 24h
CaP-0-12	0	0.1	0.1	12	Ranged from 10min to 24h
CaP-2-5	0.25 wt%	0.1	0.1	5	Ranged from 10min to 24h
CaP-2-9	0.25 wt%	0.1	0.1	9	Ranged from 10min to 24h
CaP-2-12	0.25 wt%	0.1	0.1	12	Ranged from 10min to 24h



**Fig. S2.** TEM images of the CaPs obtained from the dispersion containing 0.25 wt% Nafion with different initial Ca/P ratio (a) 0.2M/0.1M (CaP-6-9-10min); (b) 0.15M/0.15M (CaP-5-9-10min); (c) 0.1M/0.2M (CaP-4-9-10min). The dispersion mother solution pH is 9 and the incubating time is 10min.



**Fig. S3.** (a) Raman and (b) XRD spectra of formed CaPs in the presence of 0.25 wt% Nafion dispersion with the initial pH ranged from 5 to 12.



**Fig. S4.** pH shift of the incubating solutions before and after addition of 0.25 wt% Nafion with the initial pH of  $\text{Ca}^{2+}$  and phosphate solution ranged from 5 to 12.