# Supporting Information

## Microwave-assisted rapid synthesis of ultralong hydroxyapatite nanowires using glycerophosphate and their ordered assembly into flexible macroscopic fibers

Si-Yi Li,[ab] Yu Zhang,[a] Ying-Jie Zhu,*[ab] and Han-Ping Yu*[a]

[a] Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, China

[b] Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences, Beijing 100049, China

* Correspondence:

E-mail addresses: y.j.zhu@mail.sic.ac.cn (Y. J. Zhu);

yuhanping@mail.sic.ac.cn (H. P. Yu).

**Preparation of the flexible paper made from UHAPNWs**

The flexible paper was prepared by vacuum filtration using UHAPNWs synthesized by the calcium oleate precursor microwave-assisted hydrothermal method. The as-prepared UHAPNWs were dispersed in deionized water to form an aqueous suspension. Then, the aqueous suspension of UHAPNWs was poured onto a filter paper. After the vacuum-assisted filtration process to remove water, a wet and white paper was formed on the filter paper. Finally, the paper was dried at 60 °C for 6 h. The paper was carefully peeled off from the filter paper after drying.

The preparation of the paper made from HAP nanorods paper is similar to the above-mentioned procedure. Commercially purchased HAP nanorods (Sinopharm Chemical Reagent Co., China) were used for making the paper. The as-prepared paper made from HAP nanorods exhibited many tiny cracks immediately after preparation, and could not be peeled off from the filter paper because of its high brittleness. Therefore, it was photographed directly on the filter paper without peeling off.

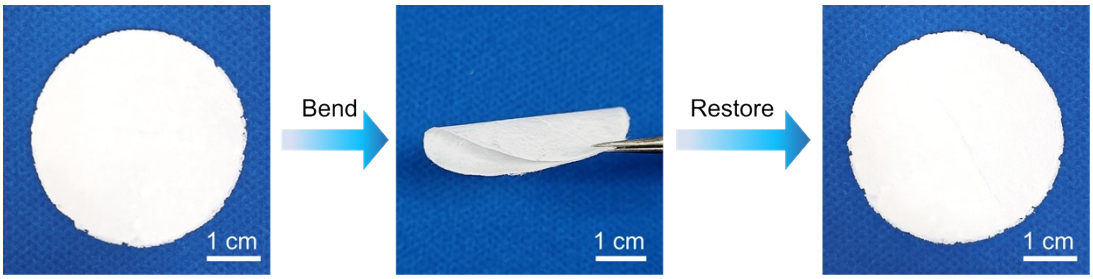



**Figure S1.** Digital images showing high flexibility of the paper made from UHAPNWs.

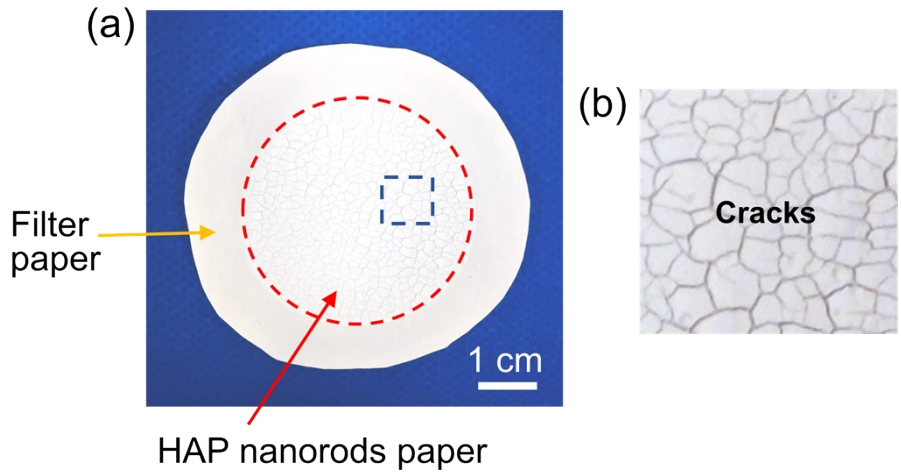
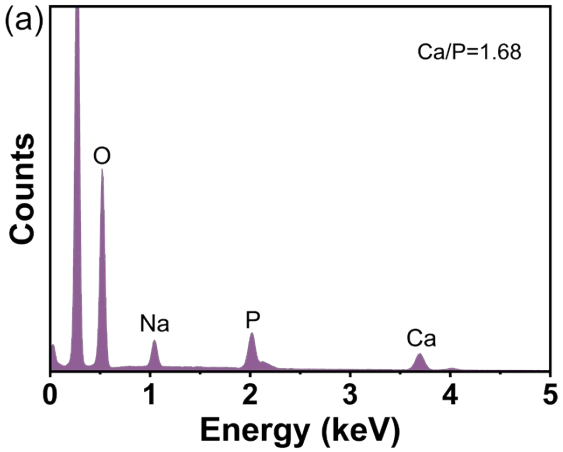



**Figure S2.** (a) Digital image of the paper made from HAP nanorods without peeling off from the filter paper. (b) Magnified view of the blue dashed area on the HAP nanorod paper. The red dashed circle in (a) shows the outline of the HAP nanorod paper.




(b)

| Element | Atomic percent (%) |
|---|---|
| C | 26.60 |
| O | 41.78 |
| P | 10.66 |
| Ca | 17.94 |

**Figure S3.** EDS profile (a) and atomic percentages of different elements (b) of the as-prepared UHAPNWs.

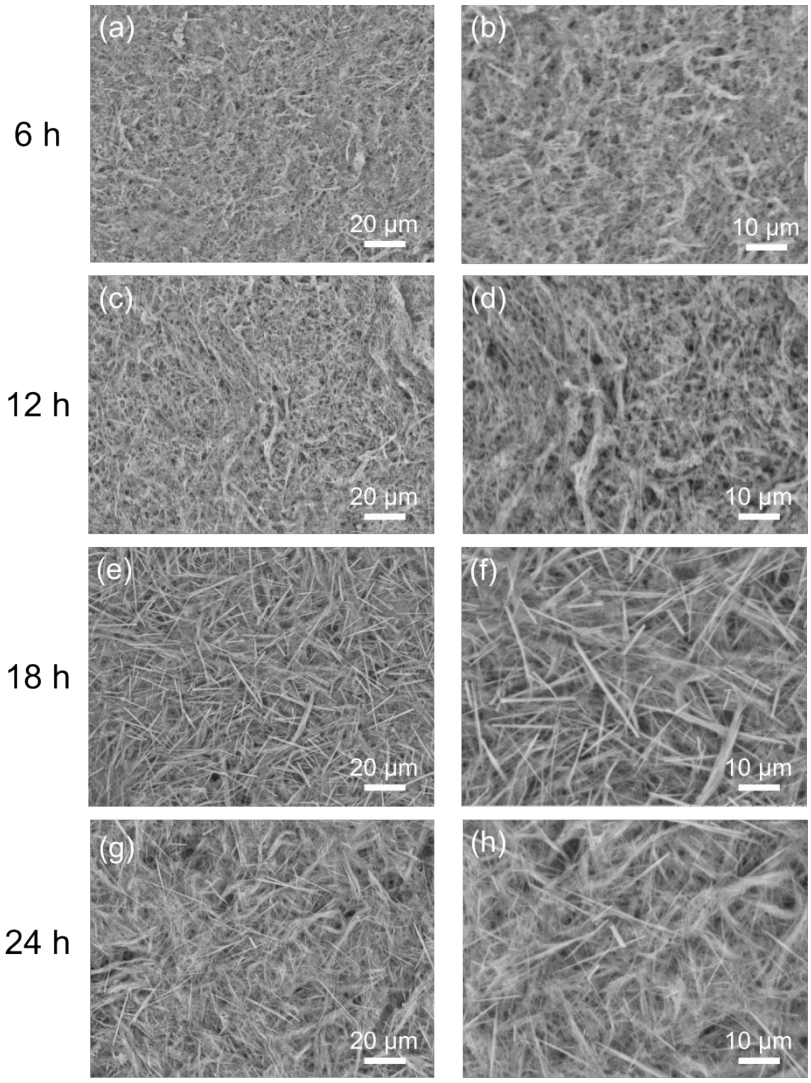



**Figure S4.** SEM images of the products synthesized by the calcium oleate precursor conventional hydrothermal method using β-GP as the organic phosphorus source at 180 °C for different times: (a, b) 6 h; (c, d) 12 h; (e, f) 18 h; (g, h) 24 h.