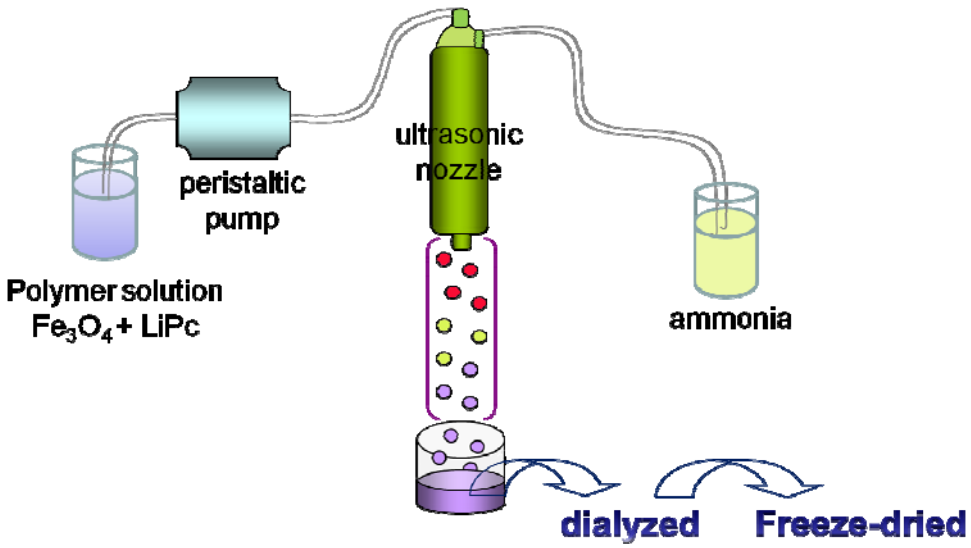
Electronic Supplementary Information

Synthesis of Composite Microgel Capsules by Ultrasonic Spray Combined with in situ Crosslinking

Lingling Zhao[1], Lijun Zhu[1], Qian Wang[1], Jiaoli Li[1], Chengliang Zhang[1], Jiguang Liu[1], Xiaozhong Qu[1]*, Guanglong He[2], Yunfeng Lu[3] and Zhenzhong Yang[1]*

[1]State Key Laboratory of Polymer Physics and Chemistry, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China. [2]Davis Heart & Lung Research Institute, The Ohio State University, Columbus, OH 43210, USA. [3]Department of Chemical and Biomolecular Engineering, University of California at Los Angeles, Los Angeles, CA 90095, USA.

*Corresponding authors. Email: yangzz@iccas.ac.cn, quxz@iccas.ac.cn



Scheme S1 Illustration of the process for synthesizing Fe_3O_4 nanoparticle and LiPc microcrystal loaded microgel capsules.

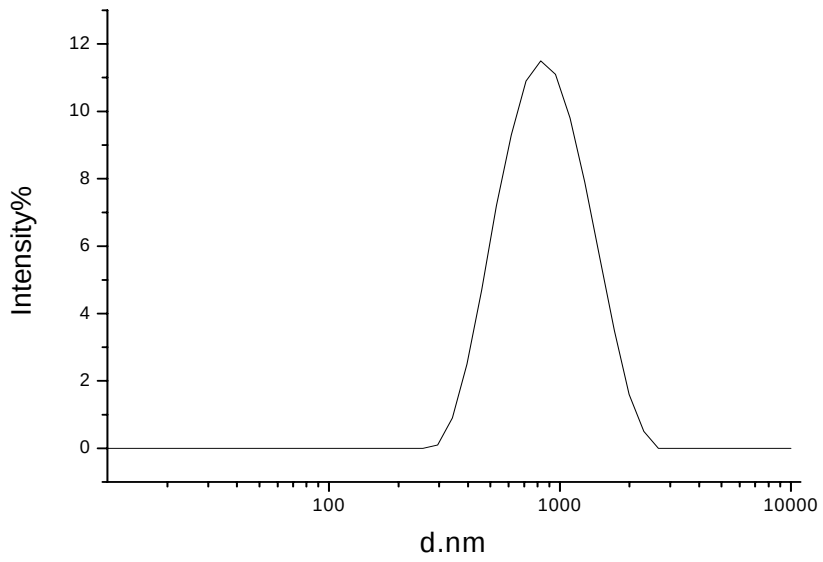


Figure S1 DLS diagram of GC/OHC-PEG-CHO gel capsules prepared from 0.5 wt% polymer solution with an OHC-PEG-CHO feed ratio of 0.2 mol/mol. The concentration used for the DLS measurement was 2 mg/mL.

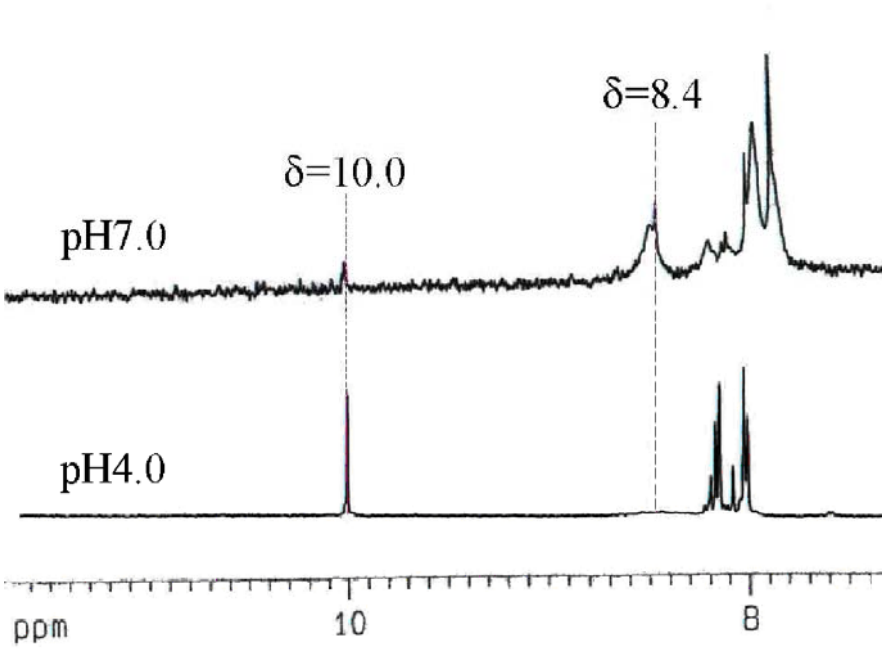
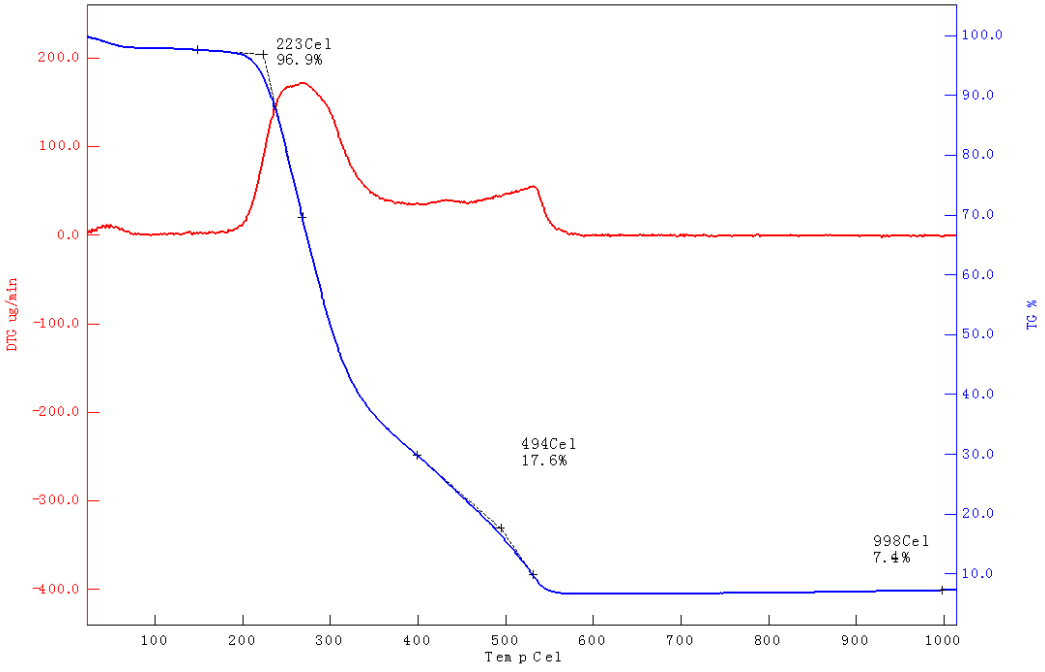
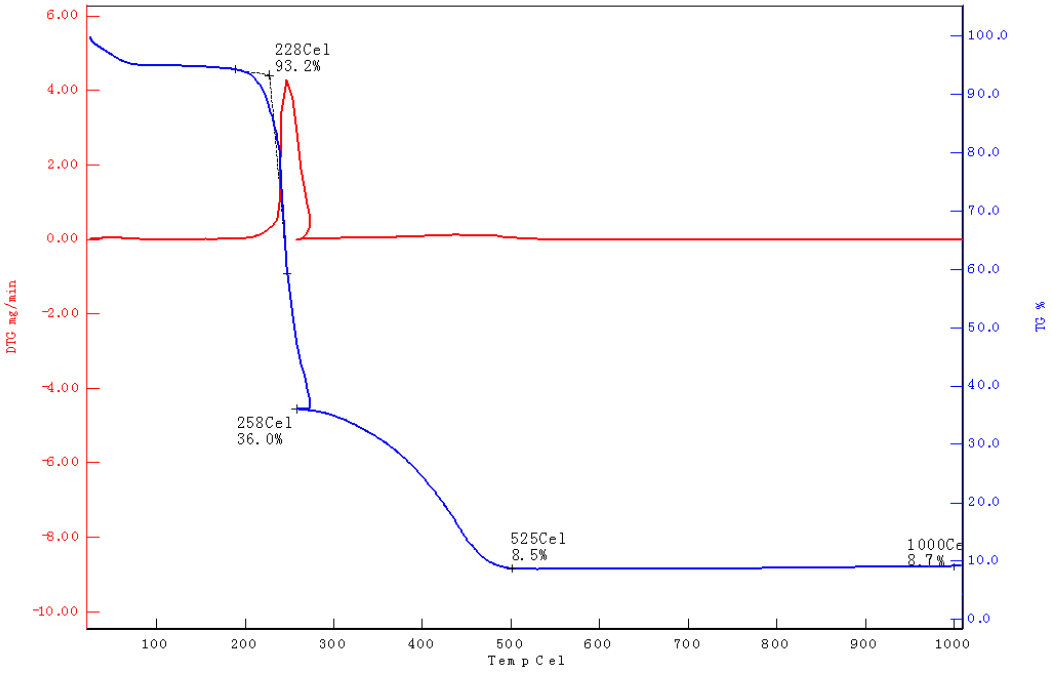


Figure S2 Enlarged ^{1}H NMR spectra of GC/OHC-PEG-CHO gel capsules in aqueous solution (D_2O) at pH 7.0 and 4.0. δ 10.0 ppm: aldehyde proton, δ 8.4 ppm: imine proton, δ 8.3-7.9 ppm: aromatic protons.



(a)



(b)

Figure S3 TGA diagrams of Fe_3O_4/LiPc (a) and Fe_3O_4 (b) encapsulated hollow microgels, measured at heating rate of 10 °C/min under air atmosphere. The content of Fe_3O_4 was calculated according to the formula Fe_3O_4 % = Fe_2O_3 % × 0.97. The polymer concentration used for preparing the capsules was 0.25 wt% and the OHC-PEG-CHO feed content was 60 mol%.