

Supporting Information

Supramolecular Binary Hydrogels from Calixarene and Amino Acids and their Entrapment-Release of Model Dye Molecules

*Jie Zhang, Dong-Sheng Guo, Li-Hua Wang, Zhen Wang and Yu Liu**,

*Department of Chemistry, State Key Laboratory of Elemento-Organic Chemistry,
Nankai University, Tianjin 300071, P. R. China*

E-mail: yuliu@nankai.edu.cn *Fax:* (+86)22-2350-3625

a) ^1H -NMR and ^{13}C -NMR spectra of TPC.

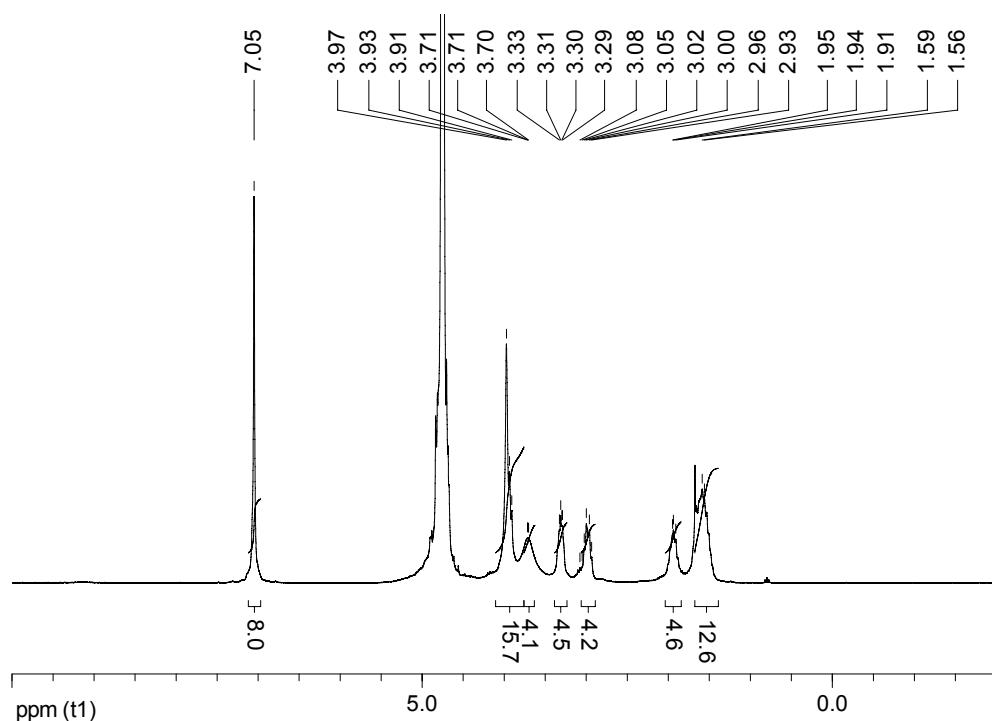


Fig. S1 ^1H -NMR spectrum of TPC.

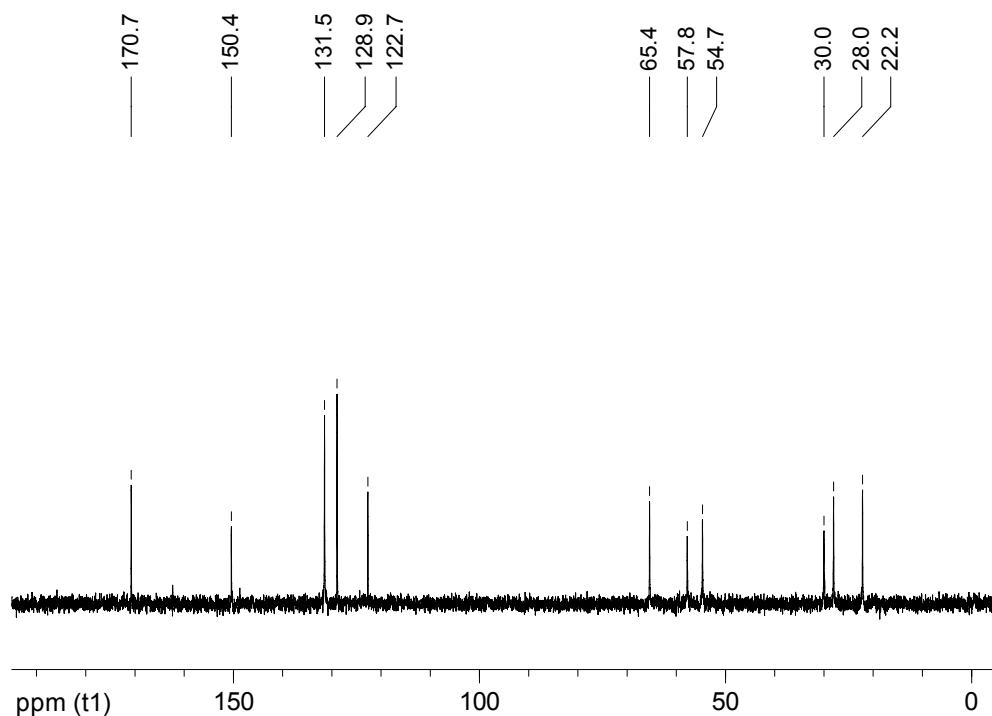


Fig. S2 ^{13}C -NMR spectra of TPC.

b) Crystal Structure of TPC.

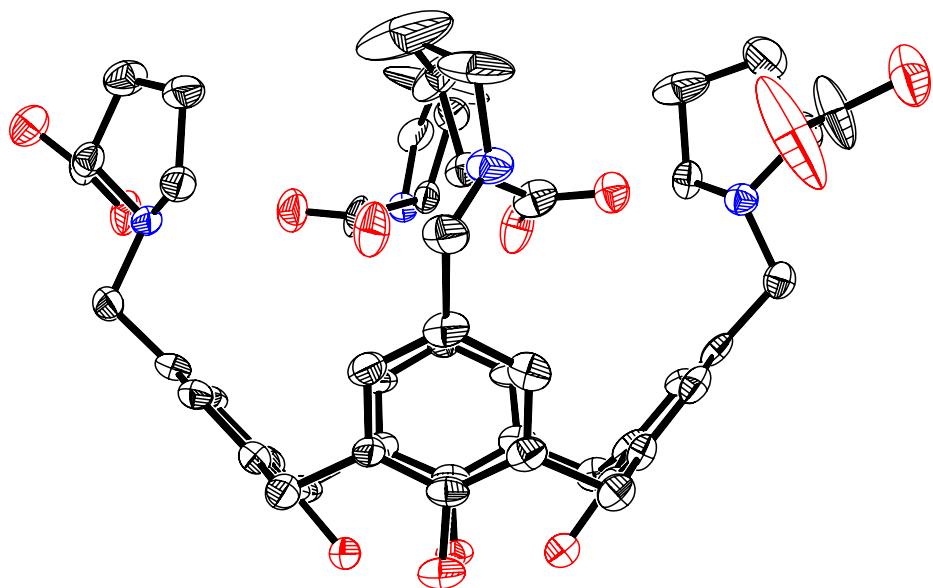
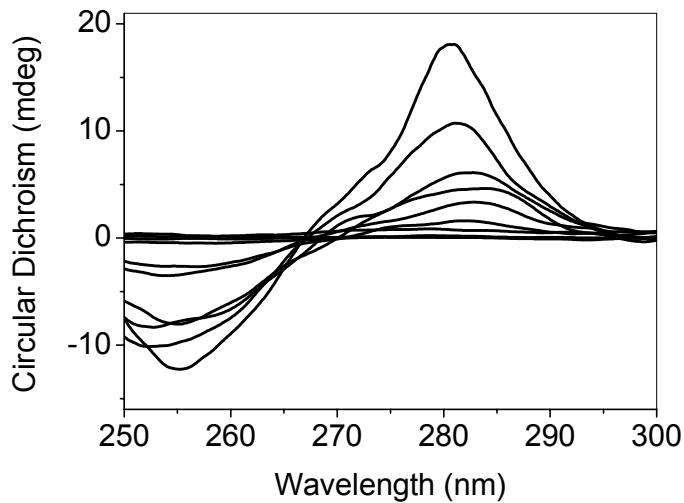
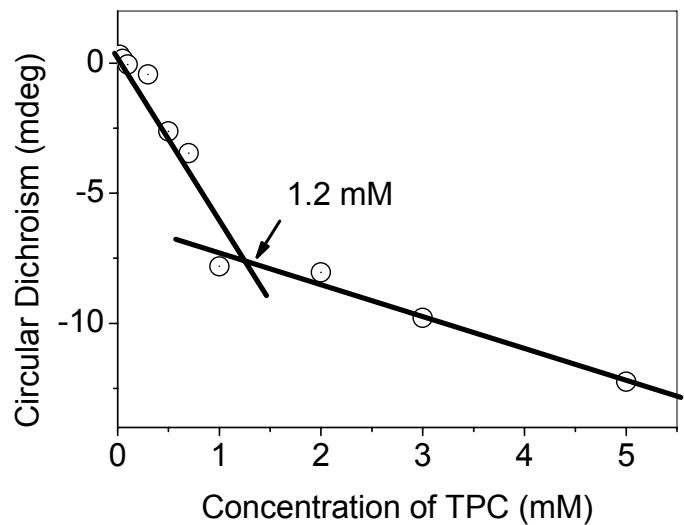


Fig. S3 Crystal structure of TPC.

c) CMC Measurement.



(a)



(b)

Fig. S4 (a) CMC determination for TPC using CD spectra.¹ (b) The plot of ellipse degree at 255 nm vs. concentration of TPC, gives a CMC of 1.2 mM at pH 3.0.

d) Zeta potential Measurement.

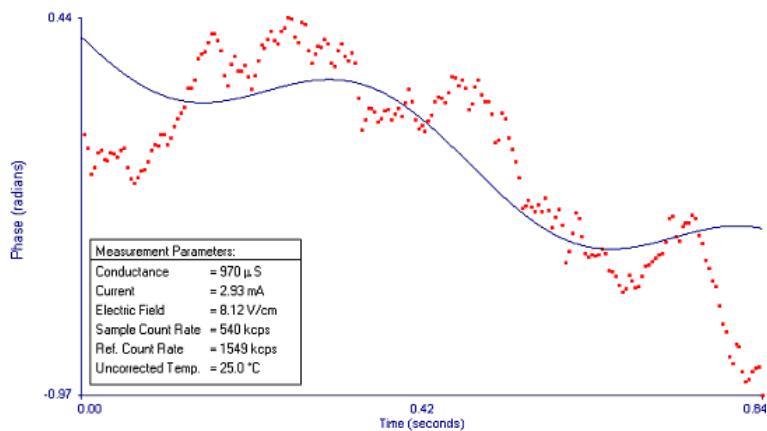


Fig. S5 Zeta potential measurement of micellar aggregation of TPC at 5 mM, 25 °C.

e) TEM and SEM Studies.

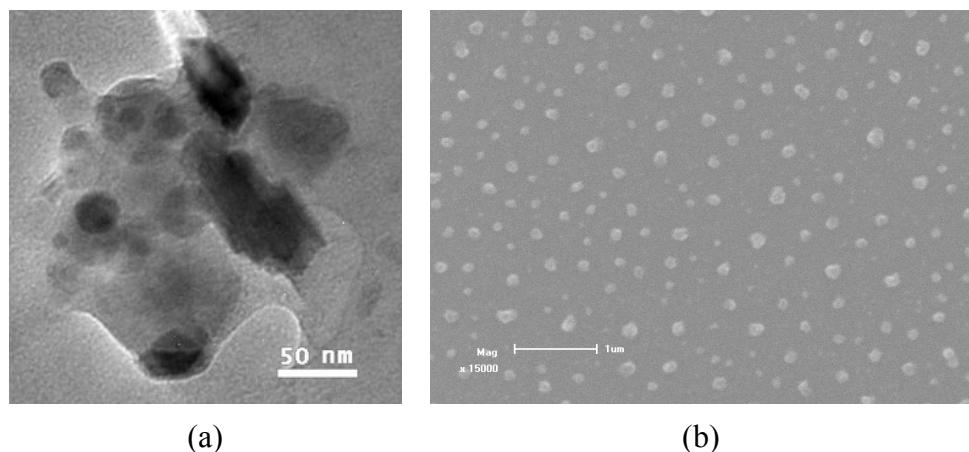


Fig. S6 (a) TEM and (b) SEM images for the nanoscale micelles of TPC.

f) AFM Studies.

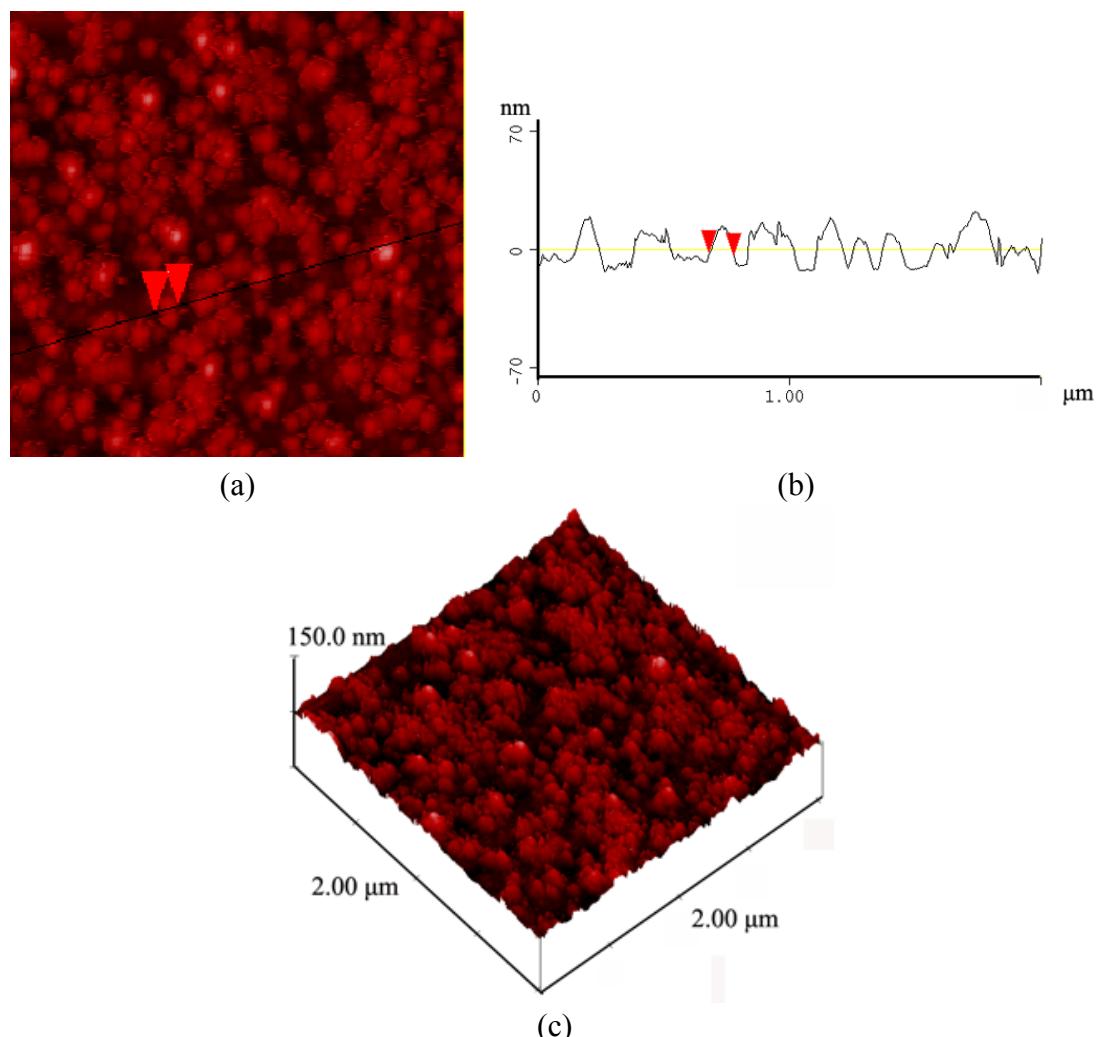


Fig. S7 (a) and (b) Height profile plot of the nanoscale spheres obtained from the solution of TPC. (c) 3D topographic view of a.

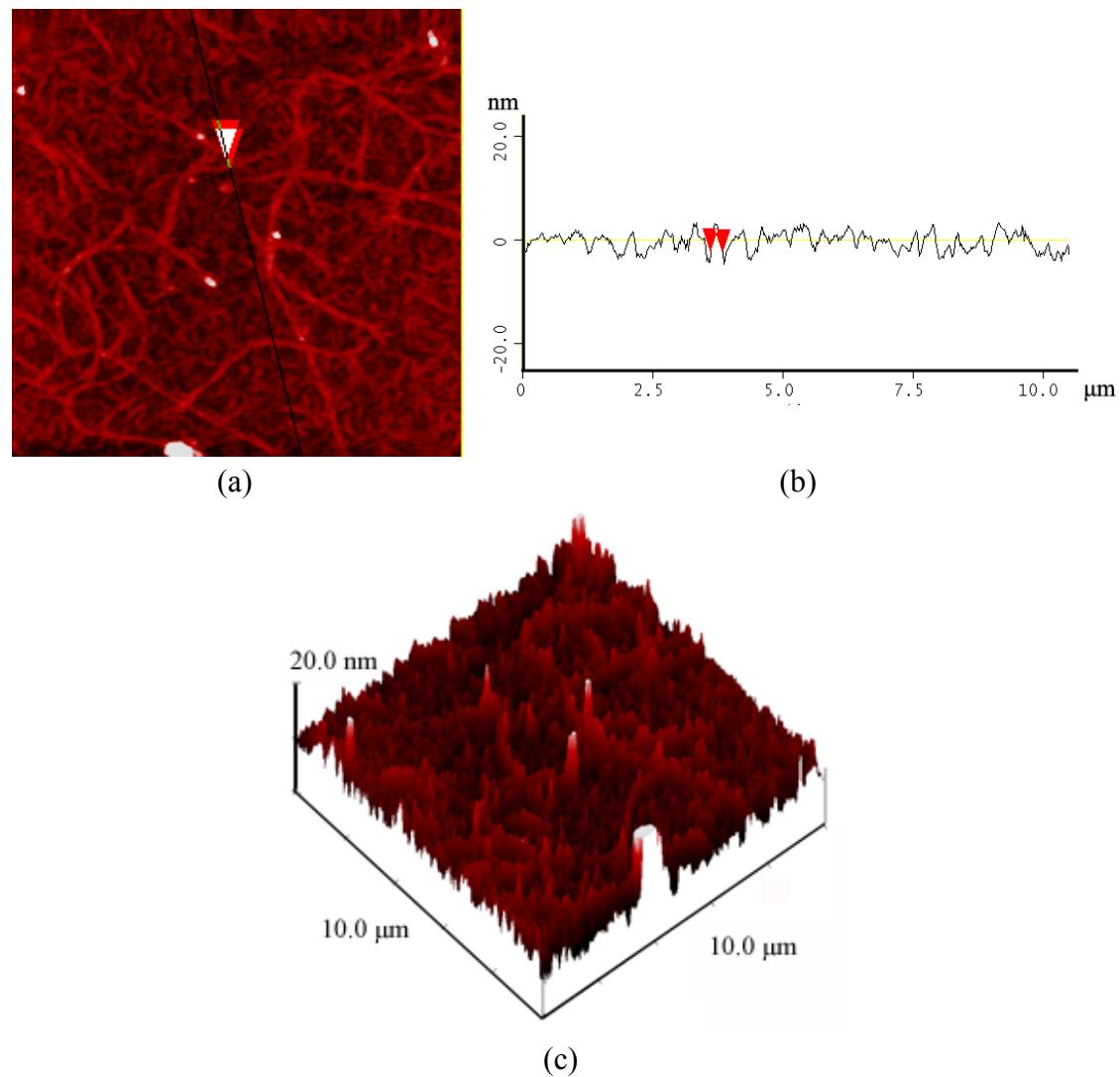


Fig. S8 (a) and (b) Height profile plot of the gel network obtained from the TPC/arginine LMWH. (c) 3D topographic view of a.

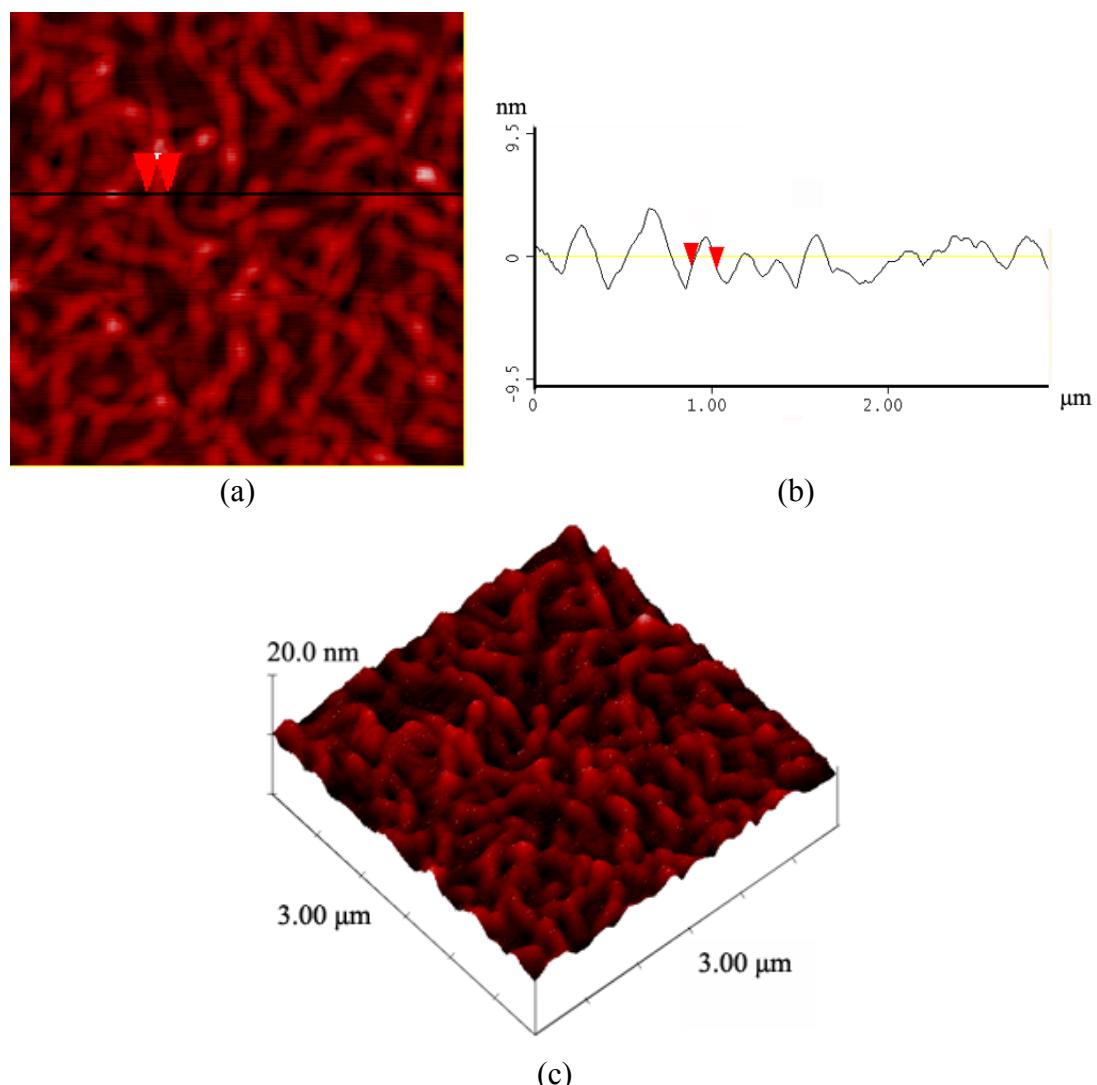


Fig. S9 (a) and (b) Height profile plot of the gel network obtained from the TPC/histidine LMWH. (c) 3D topographic view of a.

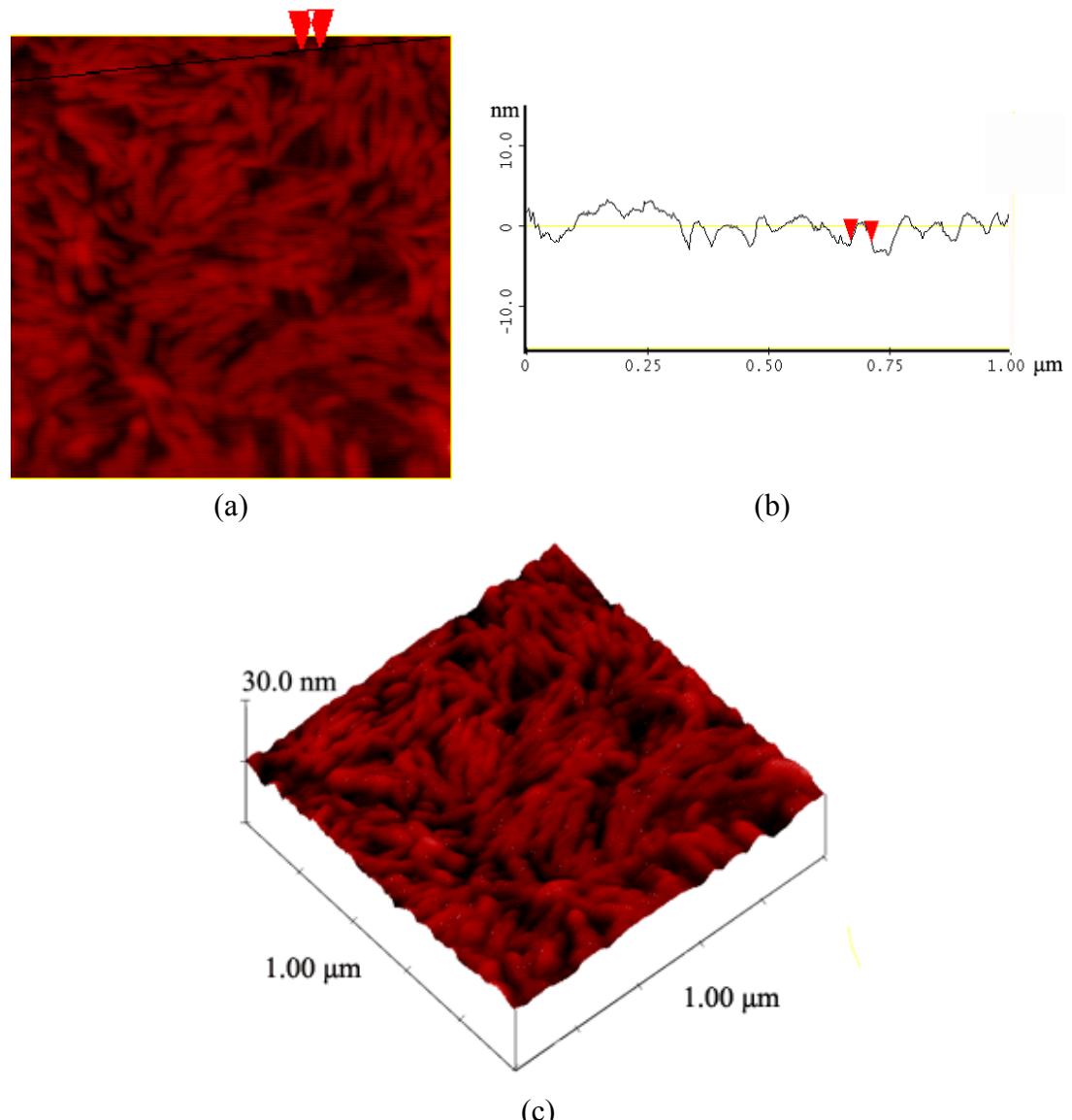


Fig. S10 (a) and (b) Height profile plot of the gel network obtained from the TPC/lysine LMWH. (c) 3D topographic view of a.

g) T_{gel} Measurements.

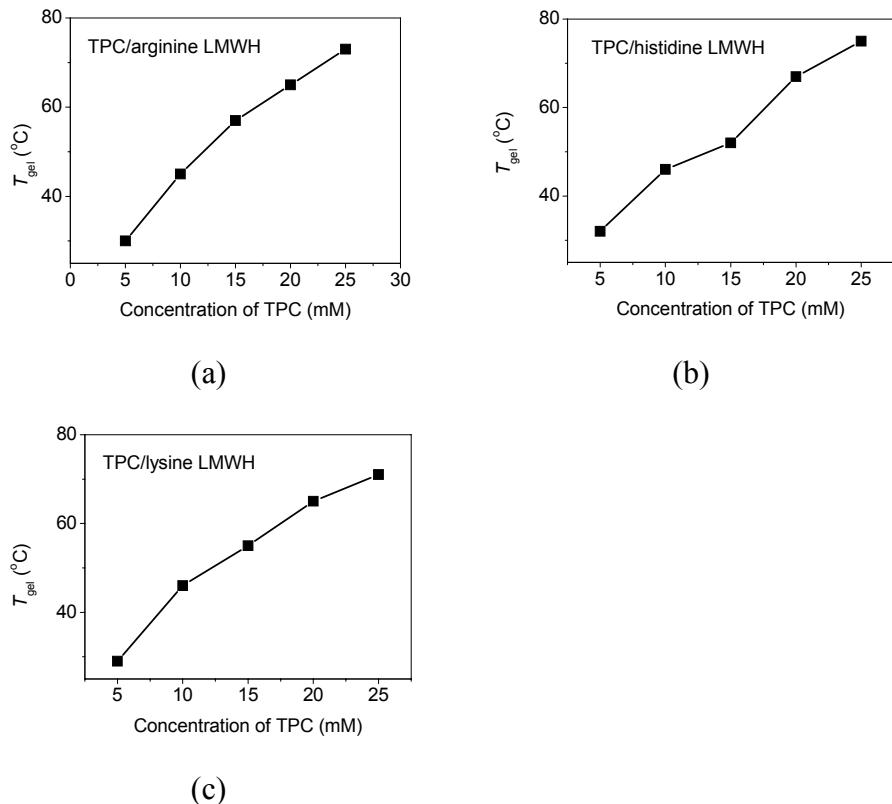


Fig. S11 Plot of T_{gel} versus concentration of TPC in LMWHs based on (a) TPC/arginine, (b) TPC/histidine and (c) TPC/lysine.

h) Fluorescence Studies.

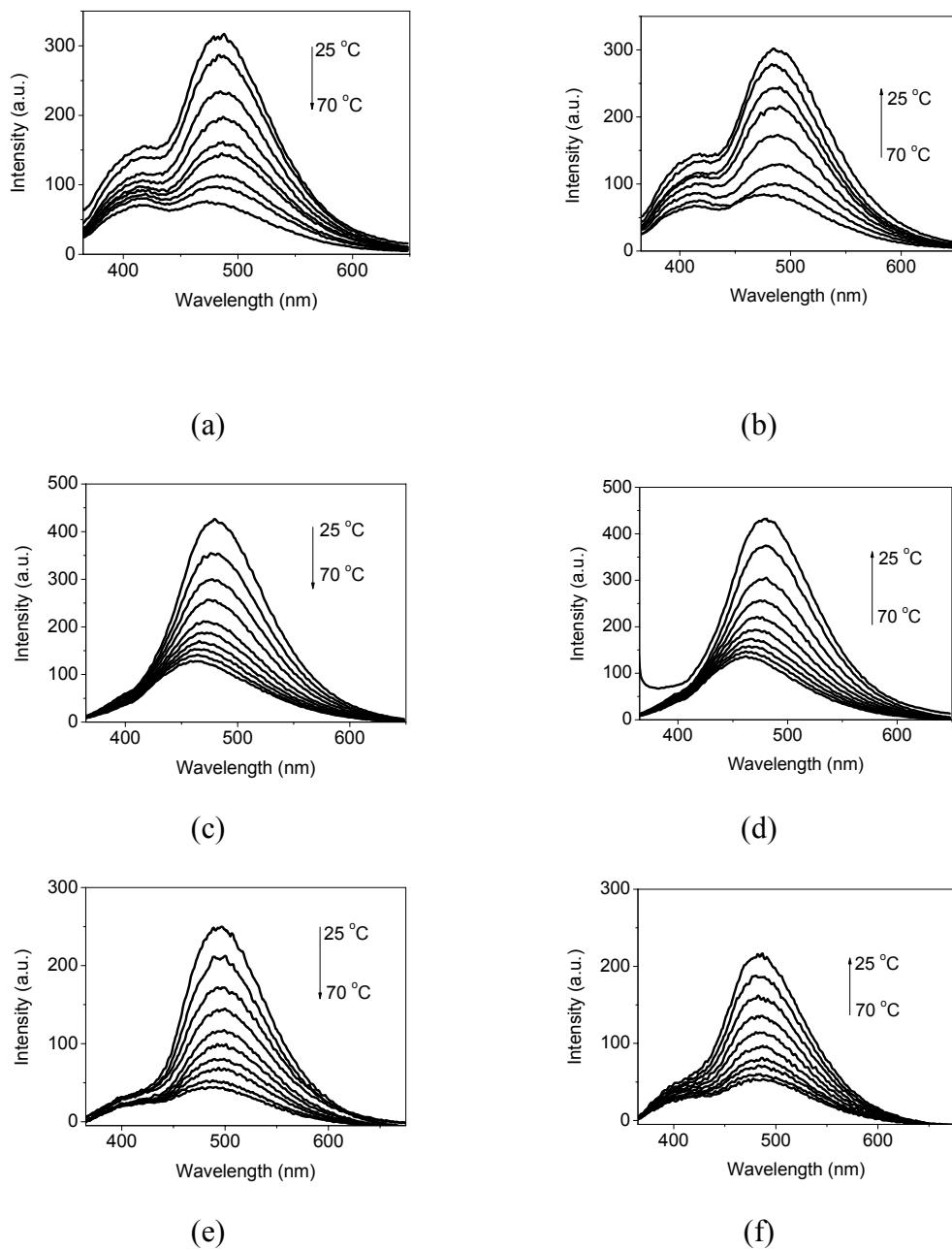


Fig. S12 Fluorescence spectra of ANS in LMWHs through temperature increasing (left) and decreasing (right). (a) and (b): TPC/arginine LMWH; (c) and (d): TPC/histidine LMWH; (e) and (f): TPC/lysine LMWH. Condition: [TPC] = 10 mM, [basic amino acids] = 40 mM in water, [ANS] = 10 μ M, $\lambda_{\text{ex}} = 360$ nm.

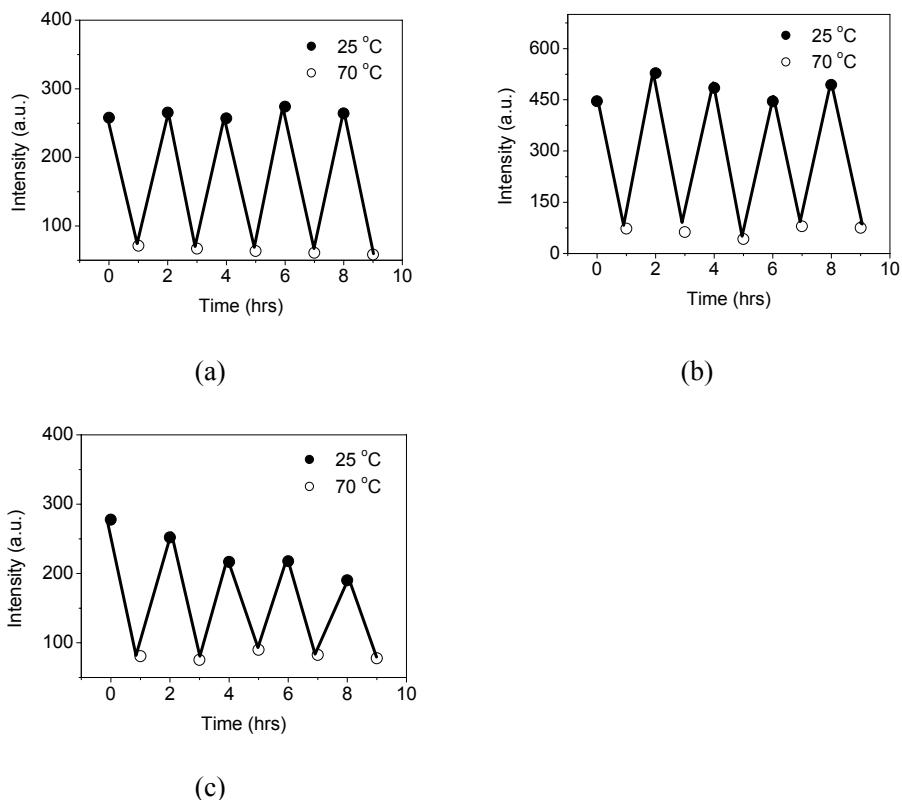


Fig. S13 Changes in fluorescence intensity of ANS as a function of cyclical variation of temperature between 25 and 70 °C in (a) TPC/arginine LMWH, (b) TPC/histidine LMWH and (c) TPC/lysine LMWH.

(1) S. Bonkoski, J. H. Perrin, *J Pharm Sci.*, 1969, **58**, 1428–1429.