

Electronic Supplementary Information

Hydro-metallocgel of an Amphiphilic L-histidine with Ferric Ions: Shear-Triggered Self-healing and Shrinkage

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Procedures: For the SEM measurements, a small amount of gels was placed onto a single-crystal silicon plate (Pt-coated) after being vacuum dried for 12 h. In the case of preparing samples for XRD measurements, gels were cast onto glass plates and dried under vacuum. Pellets made from the mixture of vacuum-dried supramolecular polymers and KBr powders were used for FT-IR spectral measurements.

Gelation studies: All the supramolecular gels were prepared in septum-capped test tubes. The amphiphilic L-histidine (LHC18) and Fe^{3+} ions with different molar ratio were dispersed in Milli-Q water and then heated until transparent. The obtained clear solution was cooled to room temperature and the gels formation was confirmed by the tube-inversion method.

Table S1. The gelation conditions for forming LHC18/Fe³⁺ supramolecular gels and the critical gelation concentrations as well as the corresponding gel–sol transition temperature “T_{gel}”.

LHC18/Fe ³⁺	H ₂ O(μL)	CGC(mg/mL)	T _{gel} (°C)
1:2	800	6.25	56.3
1:3	800	5.55	58.5
1:4	800	5.16	60.1
1:5	800	4.54	61.2
1:6	800	4.16	63.7
1:7	800	3.83	64.5
1:8	800	3.57	65.6

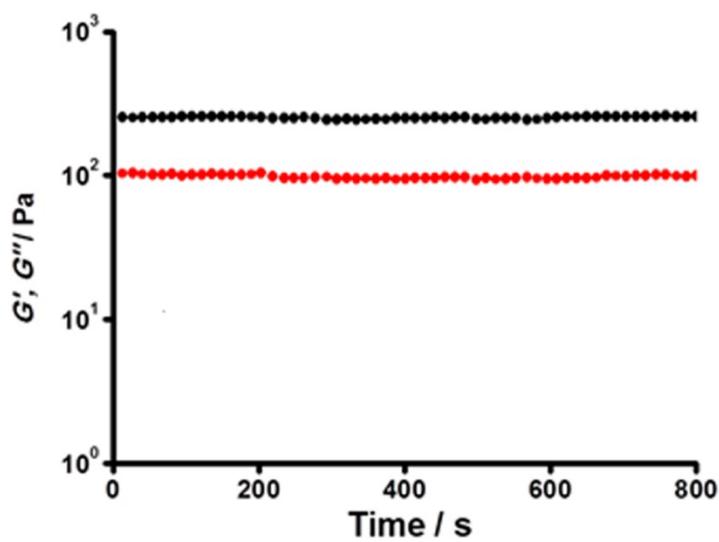
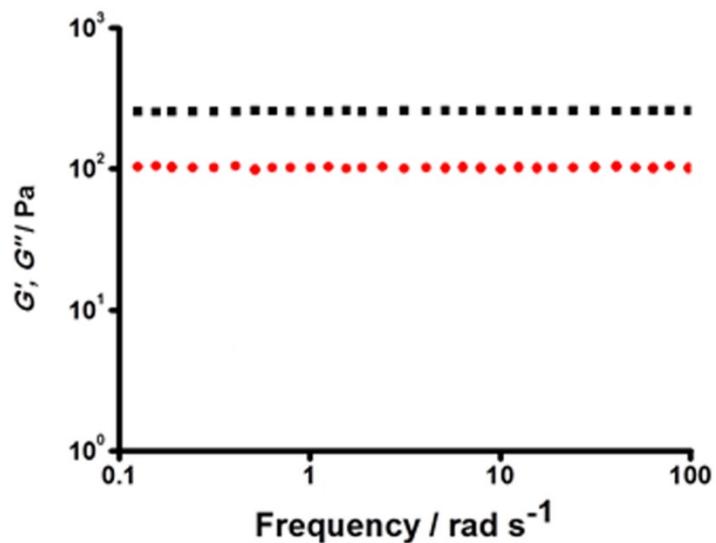


Figure S1. Rheological studies of the as-prepared LHC18/Fe $^{3+}$ gels formed in a mixture of LHC18/Fe $^{3+}$ solution (12 mM LHC18; 24 mM Fe $^{3+}$): A) frequency sweeps at the strain amplitude 0.1 %; B) time sweeps at 6.28 rad.s $^{-1}$ (black: G' , red: G'').