

A Controllable Etching Supramolecular Hydrogel Based on Metal Ion

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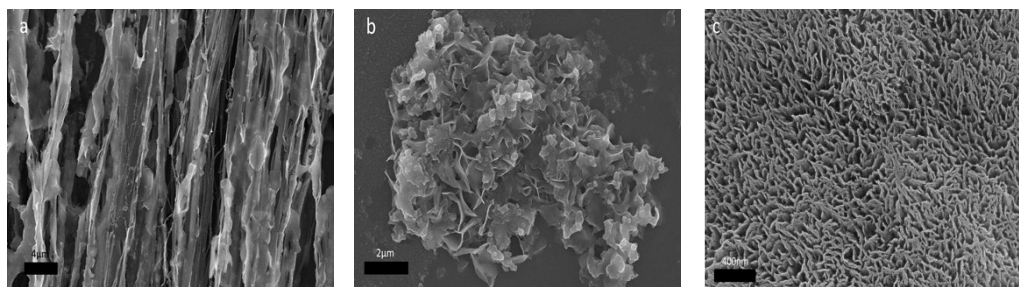


Fig. S1 SEM images of (a) etched gel by cyclohexylamine, scale bar = $4\mu\text{m}$, (b) etched gel by methylbenzene, scale bar = $2\mu\text{m}$, (c) etched gel by aniline, scale bar = 400nm .

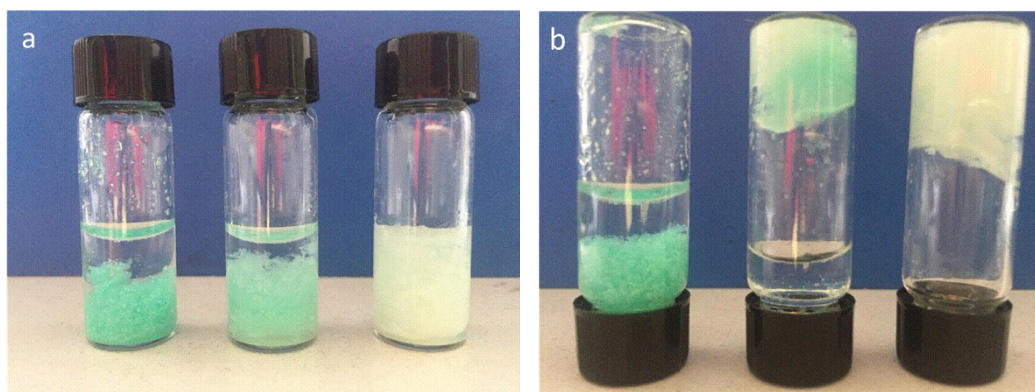
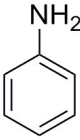
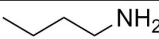
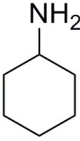
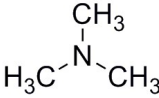
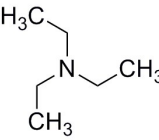
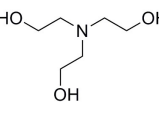
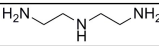
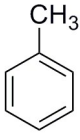
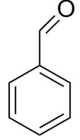


Fig. S2 images of mixed gel with different ratios. (a) From left to right: $\text{Cu}^{2+} : \text{Eu}^{3+} = 2:1, 1:1, 1:2$. (b) From left to right: $\text{Cu}^{2+} : \text{Eu}^{3+} = 2:1, 1:1, 1:2$.



Fig. S3 Fmoc-Ala mixed with different metal ions. From left to right: Li^+ , Al^{3+} , Zn^{2+} , Cu^{2+} , Fe^{3+} , Mg^{2+} , K^+ .

Table S1. Results of Eu^{3+} -induced gel etching result with different etching molecules.

etching molecules		etching rate* ($\text{cm}^3/\text{min}^{-1}$)	Results after etching gel system
aniline		5.20	blue solution
methylamine	$\text{H}_3\text{C}-\text{NH}_2$	0.257	blue solution with precipitate
n-butylamine		0.240	brown solution with precipitate
cyclohexylamine		0.263	brown solution with precipitate
trimethylamine		0.278	blue solution with precipitate
triethylamine		0.252	blue solution
ethanolamine	$\text{H}_2\text{N}-\text{CH}_2-\text{OH}$	0.260	dark blue solution with precipitate
triethanolamine		0.267	blue solution
diethylenetriamine		0.343	blue solution with precipitate
ammonia	$\text{NH}_3 \cdot \text{H}_2\text{O}$	0.310	blue solution
methylbenzene		0.243	blue solution and precipitate
benzaldehyde		0.320	blue solution
n-hexane		/	transparent solution and complete gel
cyclohexane		/	transparent solution and complete gel

