Electronic Supplementary Information for

**Ultrasound accelerated organogel: application for visual discrimination of Hg\(^{2+}\) from Ag\(^+\)**

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1. Synthesis of TN

Scheme. S1 the synthesis procedure of TN.

Synthesis of 1-4

The synthesis of 1-4 could be seen from our previous report in the literature 27.

The synthesis of TN

Compound 4, phenyl isothiocyanate (135.18 mg, 1mmol) were refluxed in ethanol for 24 hours, then solid was obtained by hot filtration, and purified by co chromatography using CH$_2$Cl$_2$ and MeOH (5:1) as eluent, resulting in yellow solid (383 mg, yield: 40%) M.p. 178-180 °C. $^1$H NMR (500 M, DMSO-$d_6$, δ): 0.59(s, 3H), 0.84 (d, 3H, J=2 Hz), 0.85 (d, 3H, J=2 Hz), 0.87-2.27 (m, 47 H), 2.97-3.08 (m, 4H), 3.59-3.63 (m, 2H), 4.27-4.33 (m, 1H), 6.96-9.98 (m, 2H), 7.12-7.15 (t, 1H, J=7.5 Hz), 7.29-7.34 (m, 3H), 7.68-7.72 (t, 1H, J=7.5 Hz), 8.25-8.27 (d, 1H, J=8.5 Hz), 8.43-8.45 (d, 1H, J=7 Hz), 8.68-8.70 (d, 1H, J=8 Hz). HRMS calc. for [C$_{57}$H$_{78}$N$_6$O$_5$S+H]$^+$:
959.5833; Found: 959.5749.

2. Other experiment data

**Fig. S1** The linear fitting curves of fluorescence change of **TN** (10^{-5}M) with the addition of [Hg^{2+}] (a) and [Ag^+] (b).

**Fig. S2** MALDITOF mass spectral experiment experiments of **TN** samples after
addition of Hg$^{2+}$ and Ag$^+$. Fig. S3 the photos of TN organogels in different organic solvents in light and in dark (irradiated by 365 nm). From left to right: gels in acetone, propanol, butanol, benzene, and isopropanol.

![Fig. S4 FT-IR spectra of precipitate and S-gel of TN.](image)

Fig. S4 FT-IR spectra of precipitate and S-gel of TN.

![Fig. S5 XRD data of TN S-gel in butanol.](image)

Fig. S5 XRD data of TN S-gel in butanol.
Fig. S6 TN S-gel and S-gels in butanol upon the addition of other ions (5 eq.) in light and in dark. From left to right: TN gel, gel with CuCl$_2$, gel with ZnCl$_2$, gel with PbCl$_2$, gel with CdCl$_2$.

Table S1 the complete fluorescence quenching time of TN S-gel in butanol upon the addition of different amount of Hg$^{2+}$.

<table>
<thead>
<tr>
<th>Amount of Hg$^{2+}$</th>
<th>0.5 eq.</th>
<th>1 eq.</th>
<th>2 eq.</th>
<th>3 eq.</th>
<th>5 eq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quenching time</td>
<td>2 d</td>
<td>1 d</td>
<td>16 h</td>
<td>7.5 h</td>
<td>4 h</td>
</tr>
</tbody>
</table>

Table S2 the gel collapsing time of TN S-gel in butanol upon the addition of different amounts of Ag$^+$.  

<table>
<thead>
<tr>
<th>Amount of Ag$^+$</th>
<th>0.5 eq.</th>
<th>1 eq.</th>
<th>2 eq.</th>
<th>3 eq.</th>
<th>5 eq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collapsing time</td>
<td>3 d</td>
<td>2 d</td>
<td>24 h</td>
<td>17 h</td>
<td>8 h</td>
</tr>
</tbody>
</table>

Fig. S7 photos of TN gel in benzene, and gels upon the addition of Ag$^+$ and Hg$^{2+}$ in light and in dark (irradiated by 365 nm).