Supporting Information

Preparation and characterization of multistimuli-responsive photoluminescent nanocomposites of graphene quantum dots with hyperbranched polyethylenimine derivatives

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Table S1. Results of elemental analysis on GQD-PEI

<table>
<thead>
<tr>
<th>Feed ratio of PEI/OGS</th>
<th>Elemental analysis of GQD-PEI (%)</th>
<th>H content of graphene $^a$ (%)</th>
<th>C content of graphene $^b$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C</td>
<td>H</td>
<td>N</td>
</tr>
<tr>
<td>0.3</td>
<td>23.94</td>
<td>7.00</td>
<td>12.75</td>
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<tr>
<td>1.0</td>
<td>30.36</td>
<td>9.55</td>
<td>14.62</td>
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<tr>
<td>5.0</td>
<td>48.75</td>
<td>11.55</td>
<td>26.02</td>
</tr>
</tbody>
</table>

$^a$ Weight percentage of the protons of GQD moiety in GQD-PEI. $^b$ Weight percentage of the carbons of GQD moiety in GQD-PEI.

Figure S1. Typical TEM image of GQD-PEI prepared at high PEI/OGS ratio (GQD3)
Figure S2. The typical FTIR spectra of (A) PEI, (B) GQD-PEI (GQD3) and (C) GQD-PEI-IBAm (T-GQD3)

Figure S3. The typical photographs of the aqueous solution of GQD-PEI-IBAm below and above the phase transition temperature (T-GQD3 as the representative)
Figure S4. The typical 2D NOESY $^1$H NMR spectrum of supramolecular complex of PEI-IBAm with PBA in D$_2$O
**Figure S5.** The typical luminescent photographs of T-GQD below and above the phase transition temperature (T-GQD3 as the representative)

**Figure S6.** The typical emission spectra of GQD3 at room temperature (25 °C) and 50 °C (concentration of GQD3 is 6 mg/mL)
Figure S7. The effect of heating–cooling cycle on the reversibility of the emission intensity of T-GQD3 at room temperature (25 °C) and 50 °C (concentration of T-GQD3 is 12 mg/mL; excitation wavelength is 350 nm)