Supporting Information

Cucurbit[7]uril-tetrphenylethene Host-guest System Induced Emission Activity

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Scheme S1. Synthesis of the guest TATPE.

Figure S1. $^1$H NMR spectrum of 2 recorded in D$_2$O at 25°C.

Figure S2. $^1$H NMR and $^{13}$C NMR spectra of TATPE recorded in D$_2$O at 25°C.

Figure S3. Partial NOESY NMR spectrum of the complex Q[7]-TATPE recorded in D$_2$O at 25°C.

Figure S4. The MALDI-TOF mass spectrum of Q[7]-TATPE.

Figure S5. Job’s plot of $\Delta F$ in fluorescence intensity of guest TATPE versus the molar ratio of N$_{TATPE}$/ (N$_{TATPE}$ + N$_{Q[7]}$) in water.

Figure S6. The TEM image of Q[7]-TATPE (A) and the enlarged TEM image of A (B).

Figure S7. $^1$H NMR spectra of TATPE (A), the complex Q[7]-TATPE (B), adding 15.0 equiv. Ada to B (C), the complex Q[7]-Ada (D), and Ada (E) recorded in D$_2$O at 25°C.

Figure S8. Curves of fluorescence intensity versus the molar ratio of N$_{Ada}$/N$_{Q[7]}$ measured at 464 nm and 396 nm in water.

Table S1. Complex stability constant ($K_a$), enthalpy ($\Delta H^\circ$), and entropy changes ($T\Delta S^\circ$) for Q[7]-TATPE.
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Figure S3. Partial NOESY NMR spectrum of the complex Q[7]-TATPE recorded in D$_2$O at 25°C.
Figure S4. The MALDI-TOF mass spectrum of Q[7]-TATPE. It is worth noting that the MALDI-TOF mass spectroscopic results, Figure S4, provide direct support for the formation of the host-guest inclusion complex Q[7]-TATPE. The strongest peak found at $m/z$ 1348.42 corresponds to \(\{4\text{Q}[7]\text{-TATPE}-4\text{Br}^-\}^{4+}\).
Figure S5. Job’s plot of $\Delta F$ in fluorescence intensity of guest TATPE versus the molar ratio of $N_{\text{TATPE}}/(N_{\text{TATPE}} + N_{\text{Q[7]}})$ in water.
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Table S1. Complex stability constant ($K_a$), enthalpy ($\Delta H^\circ$), and entropy changes ($T\Delta S^\circ$) for Q[7]-TATPE.

<table>
<thead>
<tr>
<th>Complex</th>
<th>$K_a$ (M$^{-1}$)</th>
<th>$\Delta H^\circ$ (kJ mol$^{-1}$)</th>
<th>$T\Delta S^\circ$ (kJ mol$^{-1}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q[7]-TATPE</td>
<td>$(3.06 \pm 0.16) \times 10^5$</td>
<td>-93.62</td>
<td>-61.24</td>
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</tbody>
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