Electronic Supplementary Information (ESI)

Design of micellized α-cyclodextrin based supramolecular hydrogel system

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Fig. S1 400 MHz $^1$H NMR spectra of (a) PLPED1 and (b) PLPED3 in CDCl$_3$. 
Fig. S2 Control diagrams: (a) Homopolymer P(PEGMA); (b) Homopolymer PDMAEMA; (c) Copolymer PLLA-PDMAEMA; (d) Copolymer PLLA-PEGMA. 10% (w/v) polymer mixed with 10% (w/v) α-CD in phosphate buffer solution, pH 7.
Table S1. Physicochemical properties of cyclodextrins

<table>
<thead>
<tr>
<th>Physicochemical properties</th>
<th>α</th>
<th>β</th>
<th>γ</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of glucopyranose units</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>972</td>
<td>1135</td>
<td>1297</td>
</tr>
<tr>
<td>Central cavity diameter (Å)</td>
<td>4.7-5.3</td>
<td>6.0-6.5</td>
<td>7.5-8.3</td>
</tr>
<tr>
<td>Water solubility at 25°C (g/100 mL)</td>
<td>14.5</td>
<td>1.85</td>
<td>23.2</td>
</tr>
</tbody>
</table>

PLPED2 / α-CD  
no inclusion complex  
gel did not form

PLPED2 / β-CD  
inclusion complex formed  
gel did not form

PLPED2 / γ-CD  
inclusion complex formed  
gel did not form

Fig. S3 Polymer sample 10% (w/v) with α-, β-, γ- CD 10% (w/v) in phosphate buffer solution, pH 7
**Fig. S4** UV-vis spectra changes of DPH with increasing PLPEPD1 compolymer concentration in water at 25°C. DPH concentration was fixed at 6mM, and the polymer concentration varied between 0.0001 and 0.5 wt%. The increase in the absorbance band at 378 nm indicates the formation of a hydrophobic environment in the water.

Reference: