Supplementary materials

![Chemical structure of BH4](image)

**Figure S1.** Chemical structure of BH4.

![UV-Vis spectra](image)

**Figure S2.** UV-Vis spectra of (a) pure BH4 and (b) pure SP solutions in water (1% w/v) at different times.

![Ring opening polymerization reaction](image)

**Figure S3.** Ring opening polymerization reaction of CL initiated by the hydroxyl groups of mPEG with molecular weight of 4000 g mol⁻¹.
**Figure S4.** $^1$H-NMR spectrum of the mPEG-PCL copolymer in CDCl$_3$.

**Table S1.** The number average molecular weight ($M_n$), the weight average molecular weight ($M_w$) and the dispersity ($D$, $M_w/M_n$), as determined by $^1$H-NMR and GPC.

<table>
<thead>
<tr>
<th>Copolymer</th>
<th>$M_n$ (theoretical) [g mol$^{-1}$]</th>
<th>$M_n$ ($^1$H-NMR) [g mol$^{-1}$]</th>
<th>$M_n$ (GPC) [g mol$^{-1}$]</th>
<th>$M_w$ (GPC) [g mol$^{-1}$]</th>
<th>$D$ ($M_w/M_n$, GPC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mPEG-PCL</td>
<td>24,000</td>
<td>25,000</td>
<td>19,000</td>
<td>32,600</td>
<td>1.71</td>
</tr>
</tbody>
</table>