Supporting Information for

RAFT Polymerization of Methacrylates Containing Tryptophan Moiety:
Controlled Synthesis of Biocompatible Fluorescent Cationic Chiral Polymers with Smart pH-Responsiveness

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**Fig. S1** $^1$H NMR spectrum of CTP in CDCl$_3$ (* denotes H$_2$O resonance).

**Fig. S2** $^1$H NMR spectrum of CDP in CDCl$_3$. 
Fig. S3 $^1$H NMR spectrum of BPC in CDCl$_3$.

Fig. S4 The ESI-MS spectrum of Boc-$\text{L}$-Trp-HEMA (calculated for $[\text{M + Na}^+]$: 439.18 $m/z$, observed: 439.186 $m/z$).
**Fig. S5** The $^1$H NMR spectrum of Boc-\(\alpha\)-Trp-HEMA in CDCl$_3$.

**Fig. S6** The ESI-MS spectrum of Boc-\(\alpha\)-Trp-HEMA (calculated for [M + Na$^+$]: 439.18 m/z, observed: 439.186 m/z).
**Fig. S7** The $^1$H NMR spectrum of P(Boc-D-Trp-HEMA) in CDCl$_3$.

**UV-Vis Study of Polymer End-Groups.** Three different concentrations of 4-cyano-4-(thiobenzylthio)pentanoic acid (CTP) were prepared in $N,N$-dimethylformamide (DMF) and their absorbance values were measured at 501 nm. From these data, average molar absorptivity ($\varepsilon$) of the dithioester moiety was calculated as 144.83 M$^{-1}$ cm$^{-1}$ in DMF at 27 $^\circ$C. Polymer solutions were prepared in DMF and their absorbance at 501 nm was determined. The absorbance at 501 nm and $\varepsilon = 144.83$ M$^{-1}$ cm$^{-1}$ provided the concentration of dithioester moiety present in the polymer and from the known weight of the polymer, number average molecular weight ($M_n,\text{UV-Vis}$) values were determined.
**Table S1** Solubility of P(\(l\)-Trp-HEMA) in different solvents.\(^a\)

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Solubility</th>
<th>Solvent</th>
<th>Solubility</th>
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<tbody>
<tr>
<td>Water</td>
<td>+</td>
<td>THF</td>
<td>+</td>
</tr>
<tr>
<td>Acetone</td>
<td>+</td>
<td>Petroleum ether</td>
<td>×</td>
</tr>
<tr>
<td>Chloroform</td>
<td>×</td>
<td>Diethyl ether</td>
<td>×</td>
</tr>
<tr>
<td>DCM</td>
<td>×</td>
<td>EtOAc</td>
<td>×</td>
</tr>
<tr>
<td>CCl(_4)</td>
<td>×</td>
<td>Hexanes</td>
<td>×</td>
</tr>
<tr>
<td>Methanol</td>
<td>+</td>
<td>Benzene</td>
<td>×</td>
</tr>
<tr>
<td>Ethanol</td>
<td>+</td>
<td>Toluene</td>
<td>×</td>
</tr>
<tr>
<td>DMF</td>
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<td>1,4-dioxane</td>
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</tr>
<tr>
<td>DMSO</td>
<td>+</td>
<td>Acetonitrile</td>
<td>+</td>
</tr>
</tbody>
</table>

\(^a\) The symbols (+) and (×) indicate soluble and insoluble, respectively.

**Fig. 8** FT-IR spectra of (A) Boc-\(l\)-Trp-HEMA, (B) P(Boc-\(l\)-Trp-HEMA), and (C) P(\(l\)-Trp-HEMA).