Supporting information

For

Polypeptide gels incorporating the exotic functional aromatic amino acid 4-amino-L-phenylalanine

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Author Contributions

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Figure S1. $^1$H NMR spectrum (400 MHz, DMSO-$d_6$) of 4-carbobenzyloxyamino-L-phenylalanine, Cbz-4APhe.

Figure S2. FTIR spectra of Cbz-4APhe NCA monomer, poly(4-carbobenzyloxyamino-L-phenylalanine), and deprotected poly(4-amino-L-phenylalanine), P4APhe.
Figure S3. $^1$H NMR spectrum (400 MHz, DMSO-$d_6$) of Cbz-4APhe NCA monomer

Figure S4. $^1$H NMR spectrum (400 MHz, DMSO-$d_6$) of poly(4-carbonyloxyamino-L-phenylalanine)
Figure S5. $^1$H NMR spectrum (400 MHz, DMSO-$d_6$) of poly(4-amino-L-phenylalanine), P4APhe
**Figure S6.** Differential refractive index of poly(4-carbobenzyloxyamino-L-phenylalanine) solutions as a function of polymer concentration. The value of $dn/dc$ (0.392 ml/g) was determined from the slope of the fit line. Solvent = 1.0M LiBr in DMF.

**Figure S7.** Representative $^1$H NMR spectrum (400 MHz, DMSO-$d_6$) of the copolymer of Cbz-4APhe and Cbz-Lysine. Copolymer composition was determined from the ratio of the integrals for the $\alpha$ and $\alpha'$ resonances

**Table S1.** Molecular weight, composition, and qualitative firmness data for copolymers of Cbz-4APhe and Cbz-Lysine. Total initial NCA concentration = 80 mg/ml.

<table>
<thead>
<tr>
<th>% Lysine in feed</th>
<th>80</th>
<th>60</th>
<th>40</th>
<th>20</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Lysine in copolymer</td>
<td>80.6</td>
<td>59.6</td>
<td>41.5</td>
<td>23.1</td>
<td>0</td>
</tr>
<tr>
<td>$M_w \times 10^{-4}$</td>
<td>5.4</td>
<td>6.1</td>
<td>5.1</td>
<td>5.4</td>
<td>5.3</td>
</tr>
<tr>
<td>Film firmness</td>
<td>Soft</td>
<td></td>
<td></td>
<td></td>
<td>Hard</td>
</tr>
</tbody>
</table>
Figure S8. CD spectra of statistical copolymers of 4APhe and L-lysine with a range of comonomer compositions, measured at pH = 2.0. Copolymer concentrations = 2.5 mg/ml.