Supporting Information

Perfluoropolyether/poly(ethylene glycol) triblock copolymers with controllable self-assembly behaviour for highly efficient anti-bacterial materials

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### Table 1: Molecular Weight Analysis

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<tr>
<th>Retention time (min)</th>
<th>Mn</th>
<th>Mw</th>
<th>Mp</th>
<th>Mz</th>
<th>Mz+1</th>
<th>Polydispersity</th>
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<td>1.056452</td>
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</table>

(a) Reaction for 2 hours

<table>
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<tr>
<th>Retention time (min)</th>
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<th>Mp</th>
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</table>

(b) Reaction for 6 hours
Figure S1. Plot of GPC chromatographs of polymer P3 vs reaction time (2-16 hours), indicating the formation of triblock copolymer P3.
Figure S2. $^1$H NMR spectrum of polymer P1.

Figure S3. $^1$H NMR spectrum of polymer P2.
Figure S4. $^1$H NMR spectrum of polymer P3.

Figure S5. $^1$H NMR spectrum of polymer P4.
Figure S6. $^1$H NMR spectrum of polymer P5.

Figure S7. GPC curve of purified A-B-A type polymer P3.
**Calculation of polymer purity**

Two different types of polymers A-B-A and B-A-B may form a certain amount of diblock of polymers during polymerization. The purity of polymers **P1-P5** is calculated based on their respective ¹H NMR spectra and two representative examples are shown as follows.

**Example 1:** A-B-A type polymer **P2** with the following chemical structure is given below.

![Chemical structure of polymer P2](image)

The chemical structure of polymer **P2**

If a diblock polymer with a following chemical structure is formed, the purity of polymer **P1** could be estimated by comparing the integration of alkene proton H₄ and OCH₂CH₂ as well as the adjacent protons of oxygen atoms. Part of expanded NMR plot of polymer **P2** is given below to show how the purity of polymer **P2** is calculated.

![Expanded NMR plot](image)

The chemical structure of diblock copolymer

Purity of polymer **P2**: \(((2238.87H-0.62*93H)/2338.87H)*100\% = 97.4\%\)
Similarly, the purity of polymers P1 and P3 are estimated to be 95.0% and 94.5%, respectively.

![Part of expanded NMR plot of polymer P2](image)

**Example 2:** B-A-B type polymer P4 with the following chemical structure is given below.

![The chemical structure of polymer P4](image)

The purity of polymer P4 could be estimated by comparing the integration of proton H_a and OCH_2CH_2 as well as the adjacent protons of oxygen atoms. Part of expanded NMR plot of polymer P4 is given below to show how the purity of polymer P4 is calculated.

Purity of polymer P4: ((1308.61H-0.35*88H)/1308.61H)*100% = 97.6%

The purity of P5 was calculated to be 90.2% according to the similar method.
Part of expanded NMR plot of polymer P4