Supplementary Materials: Facile Functionalization of Electrospun Poly(ethylene-co-vinyl alcohol) Nanofibers via the Benzoazaboreole-Diol Interaction

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1. Preparation of P(MEO2MA91.0-co-MAAmBO9.0)

MEO2MA (900 mg, 4.78 mmol), MAAmBO (116 mg, 0.53 mmol), 4-cyanopentanoic acid dithiobenzoate (CTP) (7.42 mg, 2.66 × 10^{-2} mmol) and 4,4’-azobis-4-cyanovaleric acid (ACVA) (2.98 mg, 1.06 × 10^{-2} mmol) ([MEO2MA]/[MAAmBO]/[CTP]/[ACVA]₀ = 180/20/1/0.4) were dissolved in 4 mL of methanol. After degassing with nitrogen gas for 30 min, the mixture was allowed to polymerize for 24 h at 60 °C. The resulting P(MEO2MA-co-MAAmBO) was purified by dialysis against ethanol and acetone and was dried under reduced pressure.

2. Preparation of P(MEO2MA86.7-co-MAAmBO4.8-co-Ac8.5)

MEO2MA (850 mg, 4.52 mmol), MAAmBO (116 mg, 0.53 mmol), Ac (19 mg, 0.27 mmol), 4-cyanopentanoic acid dithiobenzoate (CTP) (7.42 mg, 2.66 × 10^{-2} mmol) and 4,4’-azobis-4-cyanovaleric acid (ACVA) (2.98 mg, 1.06 × 10^{-2} mmol) ([MEO2MA]/[MAAmBO]/[Ac]/[CTP]/[ACVA]₀ = 170/20/10/1/0.4) were dissolved in 4 mL of methanol. After degassing with nitrogen gas for 30 min, the mixture was allowed to polymerize for 24 h at 60 °C. The P(MEO2MA86.7-co-MAAmBO4.8-co-Ac8.5) was purified by the same protocol as shown above.

3. Preparation of P(MEO2MA93.9-co-MAAmBO5.2-co-PyMA0.9)

MEO2MA (900 mg, 4.78 mmol), MAAmBO (116 mg, 0.53 mmol), PyMA (16 mg, 5.31 × 10^{-2} mmol), 4-cyanopentanoic acid dithiobenzoate (CTP) (7.42 mg, 2.66 × 10^{-2} mmol) and 4,4’-azobis-4-cyanovaleric acid (ACVA) (2.98 mg, 1.06 × 10^{-2} mmol) ([MEO2MA]/[MAAmBO]/[PyMA]/[CTP]/[ACVA]₀ = 178/20/2/1/0.4) were dissolved in 4 mL of methanol. After degassing with nitrogen gas for 30 min, the mixture was allowed to polymerize for 24 h at 60 °C. The P(MEO2MA93.9-co-MAAmBO5.2-co-PyMA0.9) was purified by the same protocol as shown above.

4. Preparation of P(MEO2MA99.0-co-PyMA1.0)

MEO2MA (990 mg, 5.26 mmol), PyMA (16 mg, 5.31 × 10^{-2} mmol), 4-cyanopentanoic acid dithiobenzoate (CTP) (7.42 mg, 2.66 × 10^{-2} mmol) and 4,4’-azobis-4-cyanovaleric acid (ACVA) (2.98 mg, 1.06 × 10^{-2} mmol) ([MEO2MA]/[PyMA]/[CTP]/[ACVA]₀ = 198/2/1/0.4) were dissolved in 4 mL of methanol. After degassing with nitrogen gas for 30 min, the mixture was allowed to polymerize for 24 h at 60 °C. The P(MEO2MA99.0-co-PyMA1.0) was purified by the same protocol as shown above.
Figure S1. Transmittance changes of 0.1 wt % (A) P(MEO2MA91.0-co-MAAmBO9.0), (B) P(MEO2MA56.5-co-OEGMA38.2-co-MAAmBO5.3) and (C) P(MEO2MA86.7-co-MAAmBO9.0-co-MAAmBO5.3) at pH 2 (red line) and 12 (blue line) as a function of temperature.

Figure S2. (A) Transmittance changes of 0.1 wt % P(MEO2MA93.9-co-MAAmBO5.2-co-PyMA0.9) at pH 2 (red line) and 12 (blue line) as a function of temperature. (B) Transmittance changes of 0.1 wt % P(MEO2MA99.0-co-PyMA1.0) at pH 7.4 PBS as a function of temperature.

Figure S3. SEM images of electro-spinning samples after immersion for 24 h at various conditions: (A) P(MEO2MA99.0-co-PyMA1.0)/EVOH, pH 12, 4 °C; (B) P(MEO2MA99.0-co-PyMA1.0)/EVOH, pH 12, 37 °C; (C) P(MEO2MA93.9-co-MAAmBO5.2-co-PyMA0.9)/EVOH, pH 12, 4 °C; (D) P(MEO2MA93.9-co-MAAmBO5.2-co-PyMA0.9)/EVOH, pH 12, 37 °C; (E) P(MEO2MA93.9-co-MAAmBO5.2-co-PyMA0.9)/EVOH, pH 2, 4 °C; and (F) P(MEO2MA93.9-co-MAAmBO5.2-co-PyMA0.9)/EVOH, pH 2, 37 °C.
**Figure S4.** Reusability test of EVOH/P(MEO2MA86.7-co-MAAmBO4.8-co-Ac8.5) nanofiber on pH-responsive adsorption/desorption of methylene blue dye.

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