Supporting Information

Improvement of hemocompatibility on materials by photoimmobilization of poly(ethylene glycol)

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1. NMR analyses of the synthesized poly(PEGMA-co-AA) and poly(PEGMA-co-AA-g-Az)

The synthesized poly(PEGMA-co-AA-g-Az) with two different PEGMA feed ratio (70 mol.% and 90 mol.%) was analyzed by ^{1}H-NMR (Avance-500Hz, Bruker) with *d*-DMSO as solvent. The NMR spectra were shown in Figure S1. The peak for *d*-DMSO at δ = 2.5 ppm was used for calibration. The peaks at δ = 0.7-1.0 ppm, 1.1-2.1 ppm, 3.3-3.7 ppm and 4.0 ppm are ascribed to the protons at the *b*, *a*, *e*, and *d* sites of the PEGMA segments,[1] respectively. The appearance of the signals for Az protons (6.9-7.7 ppm) [2, 3] in the ^{1}H-NMR spectra of Az-grafted copolymers indicated that Az groups were incorporated into poly(PEGMA-co-AA). Because the –CH_2– sites "d" were only found in PEGMA, the ratio of PEGMA in copolymer was calculated by dividing –CH_2– sites "d" with the summation of all –CH_2– sites "a" which is the total –CH_2– sites composed of PEGMA, PAA and Az. The PEGMA compositions in poly(PEGMA-co-AA) from two different feed ratios and the Az contents in poly(PEGMA-co-AA-g-Az) were calculated from the area of the corresponding peaks in the ^{1}H-NMR spectra and listed in Table 1.

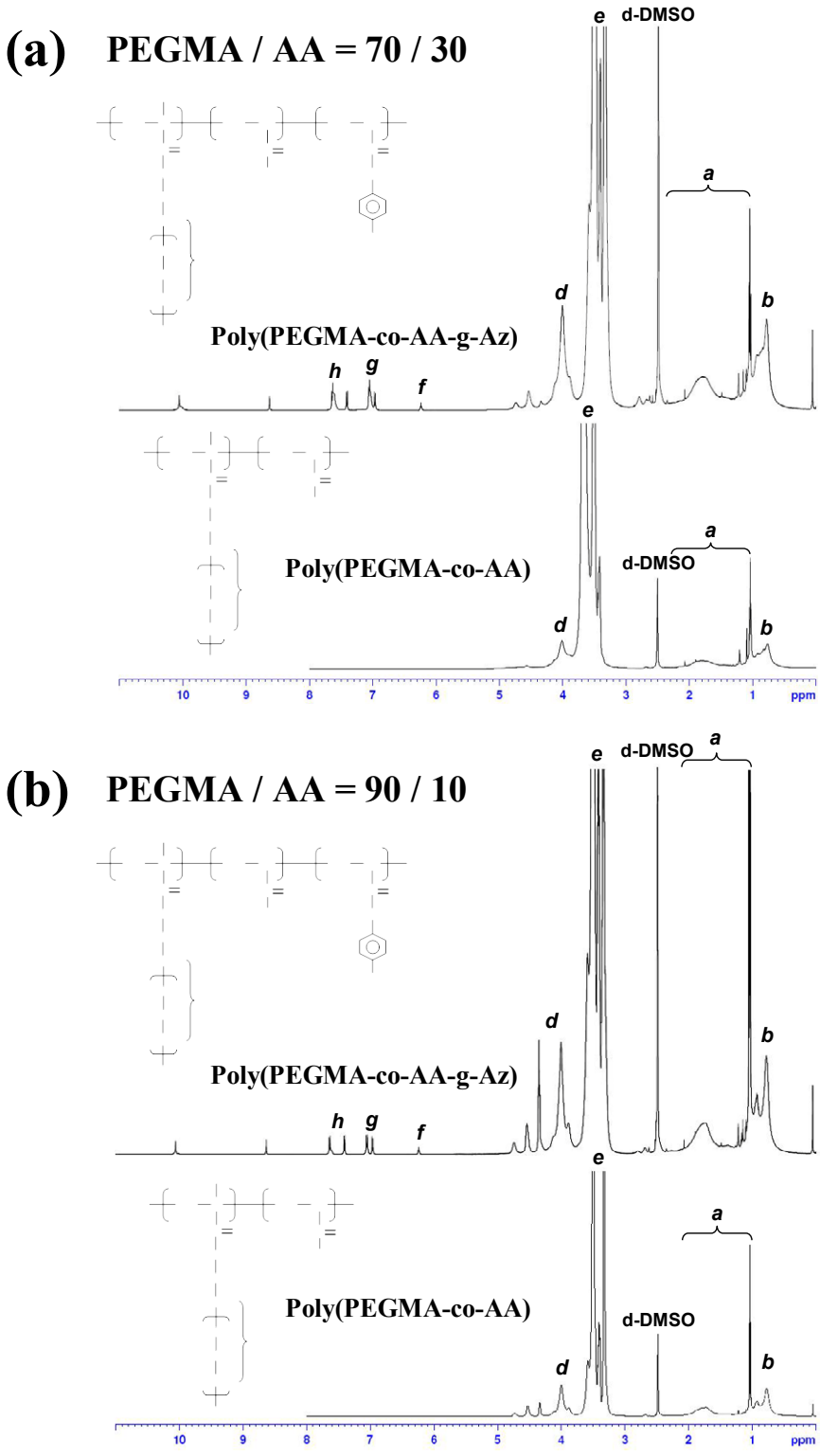

Figure S1. ^{1}H-NMR spectra for poly(PEGMA-co-AA) and poly(PEGMA-co-AA-g-Az) copolymers with (a) 70 mol% and (b) 90 mol% PEGMA feed ratio in copolymerization (in *d*-DMSO solvent).

2. Surface morphology of poly(PEGMA-co-AA-g-Az) coating surface characterized by AFM images

The surface morphology of TCPS coated with poly(PEGMA-co-AA) and poly(PEGMA-co-AA-g-Az) was characterized by AFM (Figure S2). TCPS surface revealed a smooth morphology with root-mean-square roughness (R_{rms}) of 3.488 nm. The substrates coated with both PEG70-AA and PEG90-AA presented scattered peaks, accompanied with a significant increase in R_{rms} to 13.05 nm and 11.53 nm, respectively. After NaOH treatment, PEG90-AA surface became smoother (R_{rms}= 4.66 nm) compared to the un-treated one, indicating the unstability of PEG coating without crosslinking. The deposition of PEG70-AA-Az created similar surface roughness compared to that without Az conjugation; however, the surface deposited with PEG90-AA-Az became smooth with a R_{rms} of 2.008 nm. The surface roughness of UV-crosslinked PEG90-AA-Az after 0.1N NaOH treatment revealed similar surface morphology (R_{rms} = 3.019 nm), suggesting the stability of the crosslinked PEG90-AA-Az coating.

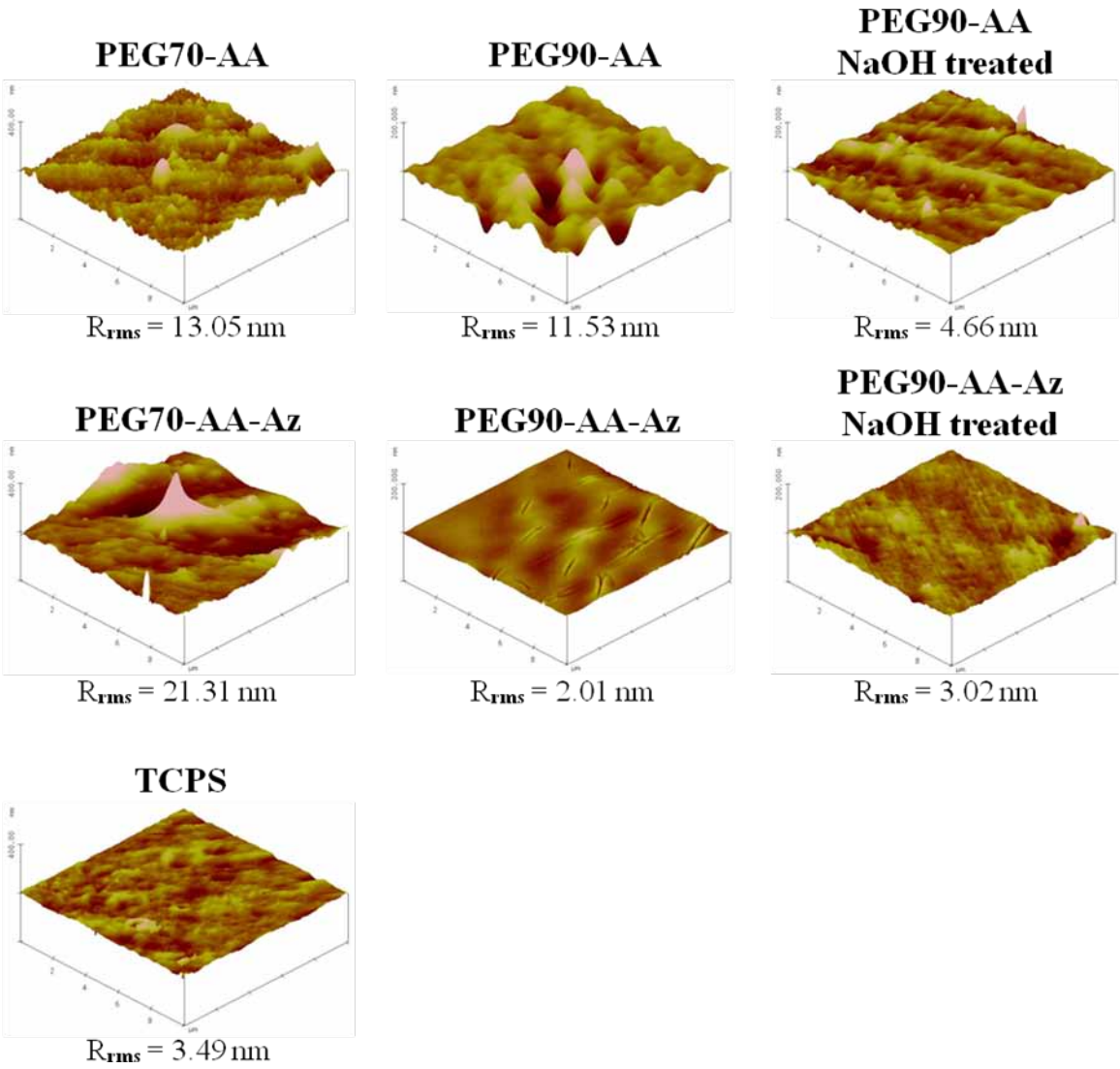

Figure S2. AFM images of PEG70-AA, PEG90-AA, PEG90-AA after NaOH treatment, PEG70-AA-Az, PEG90-AA-Az, PEG90-AA-Az after NaOH treatment coating surfaces and TCPS substrate. (the images are in 10 μm × 10 μm scale)

Reference

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