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Stable photo-reversible surface energy switching with azobenzene polyelectrolyte multilayers

Nasir M. Ahmad,[c] Xiaoyu Lu,[a,b] and Christopher J. Barrett*[a,b]

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Supporting Information for Materials Characterization

The synthesized p(DR1A-co-AA) was soluble in THF (Sigma-Aldrich Company). UV-Visible spectra were acquired with a Varian Cary 300 Bio UV-Visible spectrophotometer (Figure S1). ^{1}H NMR spectra were taken with a Varian Unity 500 MHz spectrometer operating at 125 MHz. Samples were prepared in 3 cm^3 of d-dimethyl sulfoxide (Cambridge Isotope Laboratories, Inc.) to provide a solution of 100 mg cm^{-3} concentration. (Figure S2).

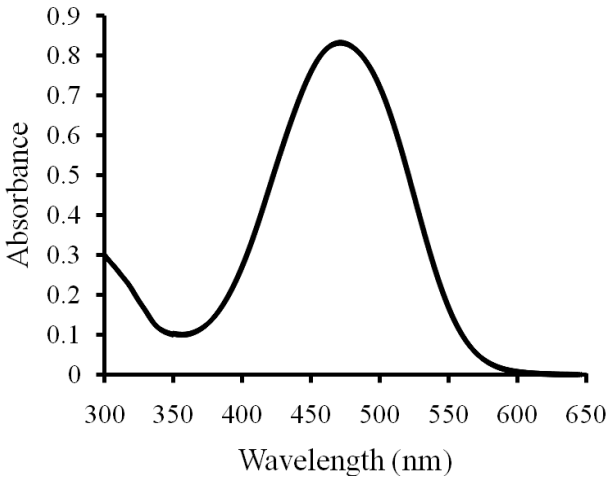

Figure S1. A representative UV-Visible spectrum of p(DR1A-co-AA) in THF. The copolymer consists of 30mol% of DR1A monomer.

A Varian PL-GPC 50 gel permeation chromatograph, equipped with a Waters Associates 510 pump and a Varian RI-4 detector, was used to measure the average molecular weight of P(DR1A-co-AA), with polystyrene as the standard. The weight average molecular weight (Mw) of P(DR1A-co-AA) was found to be ~5,000 g/mol for all samples. Differential scanning calorimetry (DSC) (TA instruments Q 2000) was used to measure the glass transition temperature of the synthesized copolymers. A SEIKO I SSC/5200 system equipped with SEIKO II SSC/5200 DSC cell was used. Accurately weighed samples were placed into aluminum pans followed by heating from 25 °C to 150 °C at a heating rate of 10 °C min^{-1} under a dry nitrogen atmosphere. The transition temperature for all p(DR1A-co-AA) copolymers fell into the region of 92—97 °C.

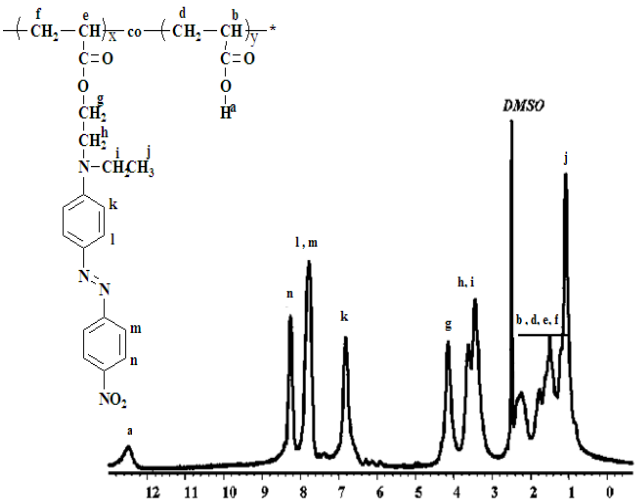

Figure S2. A representative ^{1}H NMR spectrum of p(DR1A-co-AA) in d-DMSO, with peak assignments. The copolymer consists of 30mol% of DR1A monomer.

[a] *Department of Chemistry, McGill University, Montreal, Canada. E-mail: Christopher.Barrett@mcgill.ca*
[b] *Centre for Collaborative NeuroEngineering, Montreal Neurological Hospital, Montreal, Canada.*
[c] *School of Chemical and Materials Engineering, National University of Science and Technology (NUST) Islamabad, Pakistan.*