

Supporting Information for

Facile synthesis of histidine functional Poly(N-isopropylacrylamide): Zwitterionic and temperature responsive materials

*Emma R. L. Brisson, Zeyun Xiao, Lucas Levin, George V. Franks, Luke A. Connal**

Department of Chemical and Biomolecular Engineering, The University of Melbourne, Victoria 3010,
Australia. E-mail: luke.connal@unimelb.edu.au

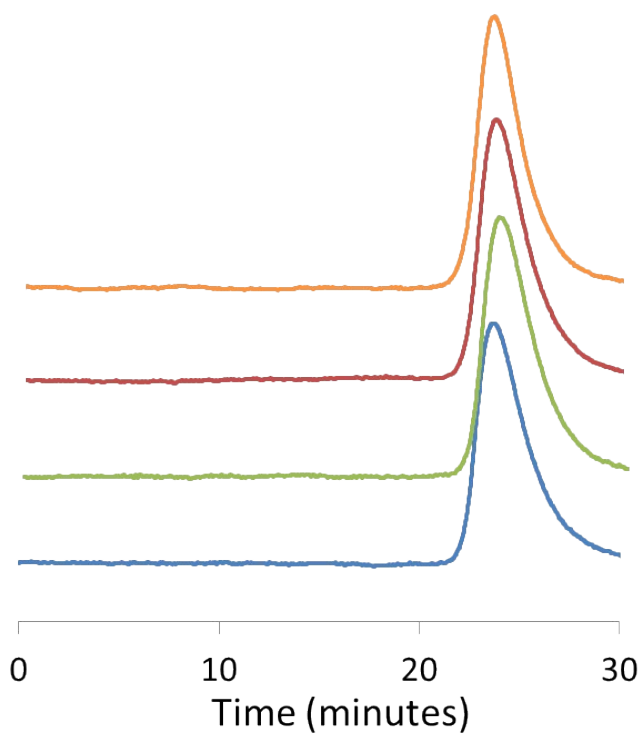


Fig. S1 The GPC traces in DMF of the aldehyde functional PNIPAm copolymers with MWs \approx 50000 and δ 1.5-1.6.

Synthesis of poly(*N*-isopropylacrylamide)

Into a schlenk tube, NiPAm (1.0 g, 8.84 mmol), CDP (0.024 g, 0.059 mmol), and AIBN (0.0029 g, 0.018 mmol) were dissolved in THF ca. 40% wt/wt. After three freeze pump thaw iterations, the polymerization was heated to 65°C and proceeded for 16 hours. The polymer was precipitated twice into diethyl ether and dried in a vacuum desiccator overnight, yielding a white powder (0.6903 g, 69%). $^1\text{H NMR}$ (400 MHz, CDCl_3): δ = 8.10-7.40 (broad, 0.96 H), 4.05-3.84 (broad, 1 H), 2.29-0.89 (broad, 9.34 H).

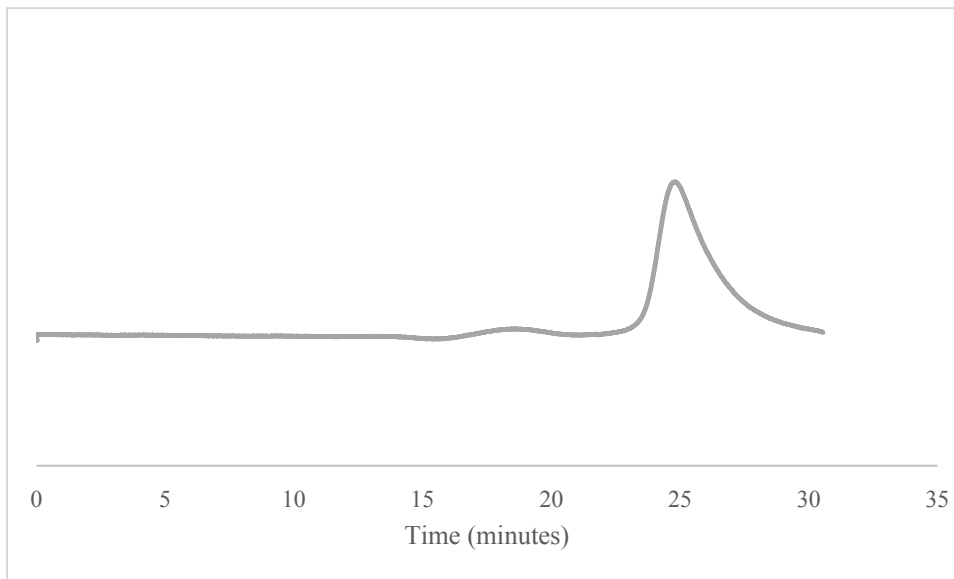


Fig. S2 The GPC (in DMF) trace of PNiPAm homopolymer synthesized by RAFT polymerization using CDP as the RAFT agent. The polydispersity is 1.43.

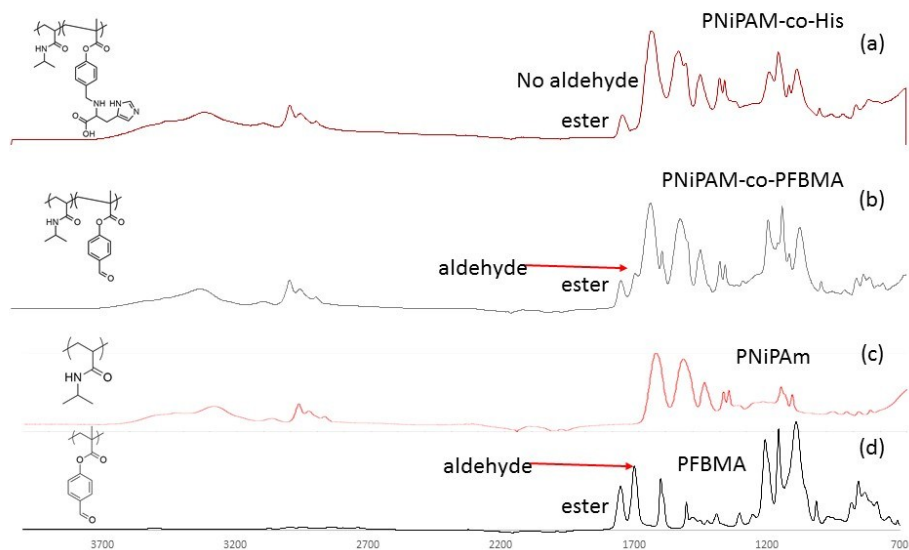


Fig. S3 The full FTIR spectra of PNiPAm₇₃-co-His₂₃ (a), PNiPAm₇₃-co-PFBMA₂₆ (b), PNiPAm (c) and PFBMA. In spectra (b) and (d) the aldehyde peak is clearly visible at 1700cm⁻¹. After reductive amination, this peak disappears as can be seen in the FTIR spectra of PNiPAm₇₃-co-His₂₃ (a).