Supplementary Information

Sprayable Adhesive Glycopolymer Hydrogels with Rapid In-Situ Gelation

Xianjun Wang, Hannah G. Abernathy, Lisa K. Kemp and Sarah E. Morgan*

School of Polymer Science and Engineering, University of Southern Mississippi, Hattiesburg, MS, USA. E-mail: sarah.morgan@usm.edu.

Table S1 Shear thinning index of as-polymerized copolymer gels.

	Shear thinning index
pGal- <i>co</i> -NiPAm	0.232
pGal- <i>co</i> -HEAA	0.249



Figure S1 SEM images of (A) pGal-co-NiPAm (after polymerization, pore diameter = $0.81 \pm 0.15 \mu$ m), (B) pGal-co-HEAA (after polymerization, pore diameter = $1.25 \pm 0.44 \mu$ m), (C) pGal-co-NiPAm (after swelling) and (D) pGal-co-HEAA (after swelling). Two copolymer samples show porous features with different morphological details.



Figure S2 ASEC-MALLS trace of pGal. $M_n = 1.71 \times 10^6$ g/mol, $M_w = 3.40 \times 10^6$ g/mol, D = 1.99.



Figure S3 Swollen pGal-co-NiPAm spayed onto to a pothos leaf shows adhesion and instantaneous gelation.

Monomer NMR:

AcGalEAm: 1H NMR (CDCl₃, 600 MHz): δ -1.99, 2.04, 2.16 (s, s, s, 12H), 3.50 (m, 1H), 3.59 (m, 1H), 3.74 (m, 1H), 3.92 (m, 2H), 4.15 (d, J = 6.3 Hz, 2H), 4.47 (d, J = 7.9 Hz, 1H), 5.02 (dd, J = 10.5, 3.4 Hz, 1H), 5.19 (dd, J = 10.5, 7.9 Hz, 1H), 5.40 (d, J = 3.2 Hz, 1H), 5.66 (d, J = 11.6 Hz, 1H), 6.02 (s, *br*, 1H), 6.11 (dd, J = 17.0, 10.3 Hz, 1H), 6.29 (d, J = 17.0 Hz, 1H).

GalEAm: 1H NMR (H₂O, 600 MHz): δ -3.52 – 4.11 (m, 10H), 4.39 (d, *J* = 7.9 Hz, 1H), 5.75 (d, *J* = 11.5 Hz, 1H), 6.18 (d, *J* = 17.2 Hz, 1H), 6.31 – 6.23 (m, 1H).