

Supporting Information for
Selective and Tunable Galectin Binding of Glycopolymers Synthesized by a Generalizable
Conjugation Method

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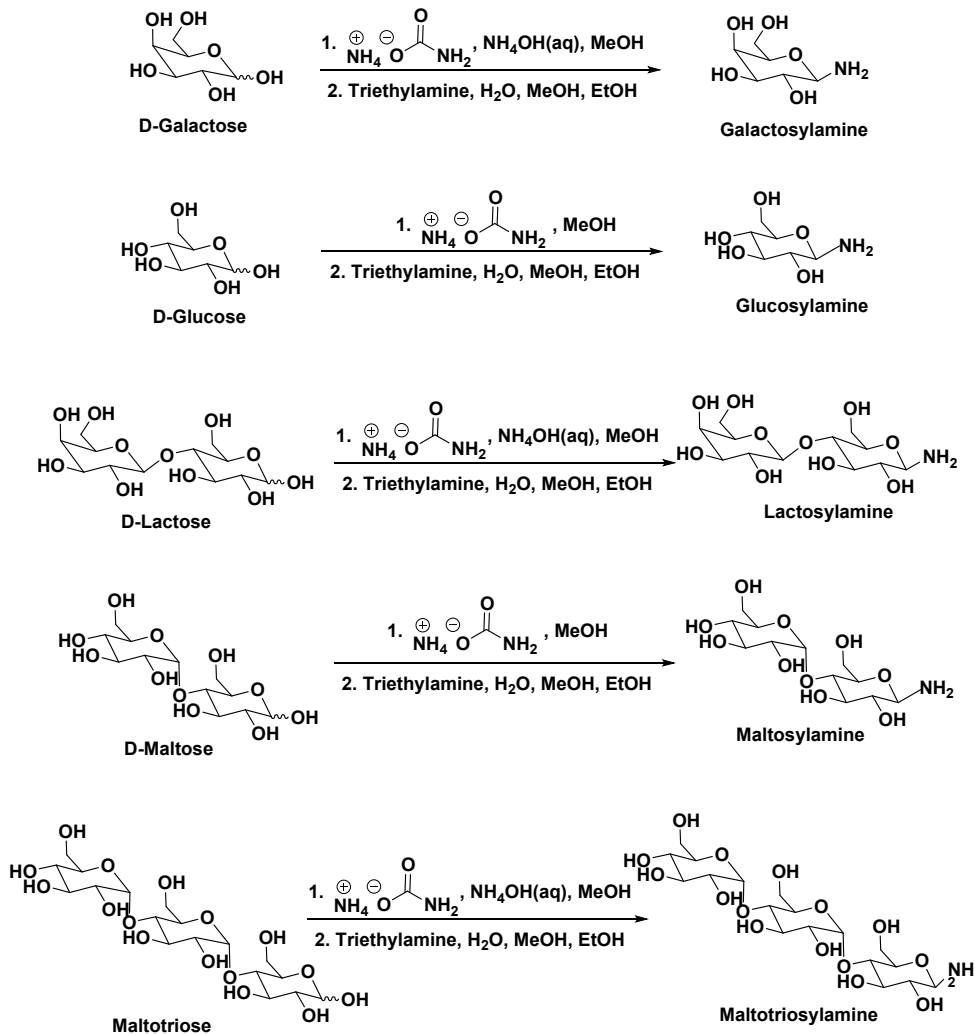
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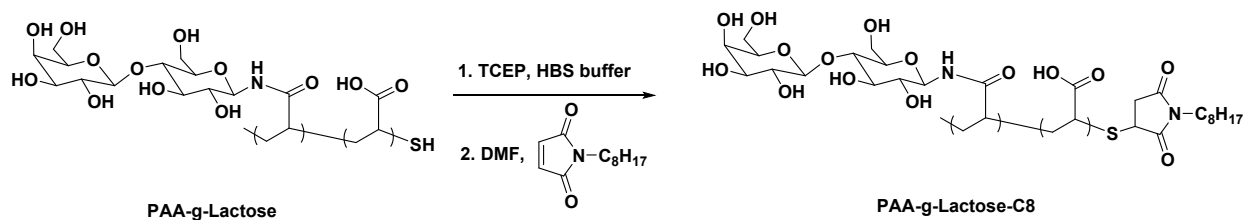
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Scheme S1. Synthesis of Glycosylamines



Scheme S2. Synthesis of PAA-g-Lactose-C8 Graft Polymers



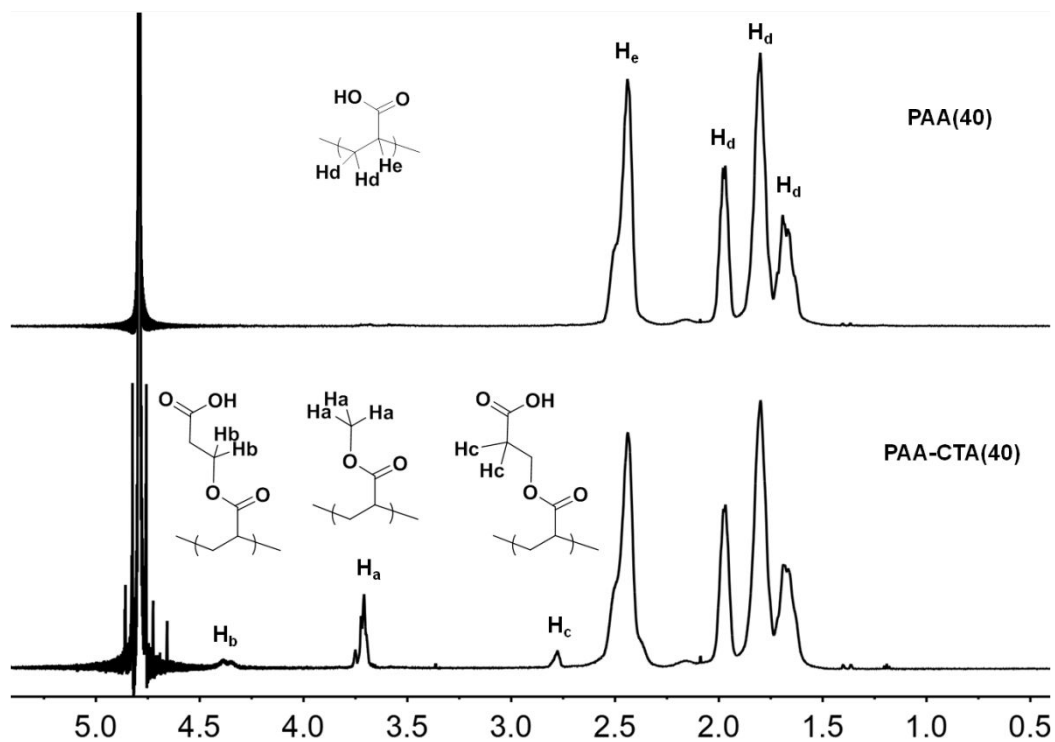


Figure S1. ^1H NMR (600 MHz) spectra of PAA-CTA(40) (bottom) and PAA(40) (top) homopolymers in D_2O . Please note that OH are used to represent exchangeable hydrogens to maintain clarity, but the authors acknowledge that OD are equally representative of the structure.

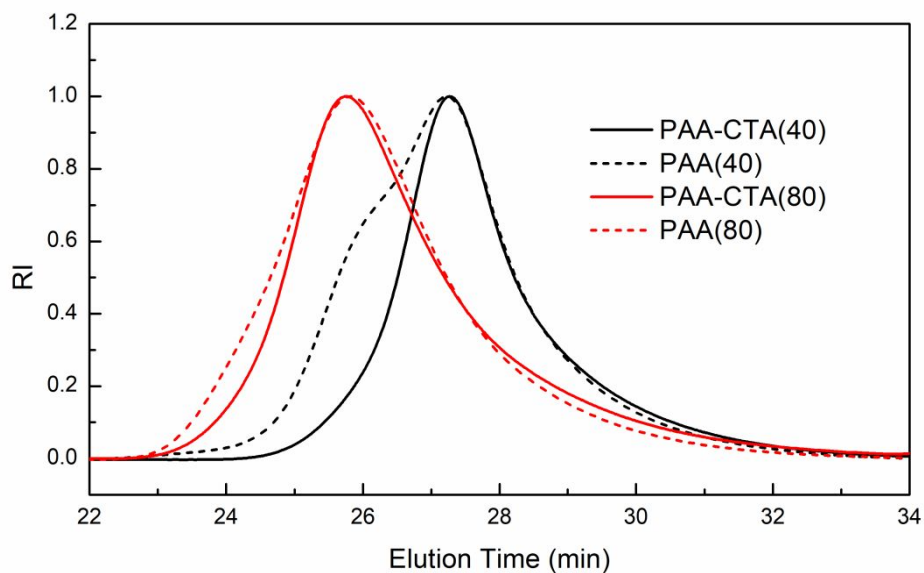


Figure S2. SEC trace of PAA-CTA(40), PAA(40), PAA-CTA(80), and PAA(80). PBS was used as the eluting solvent at a flow rate of 0.8 mL/min

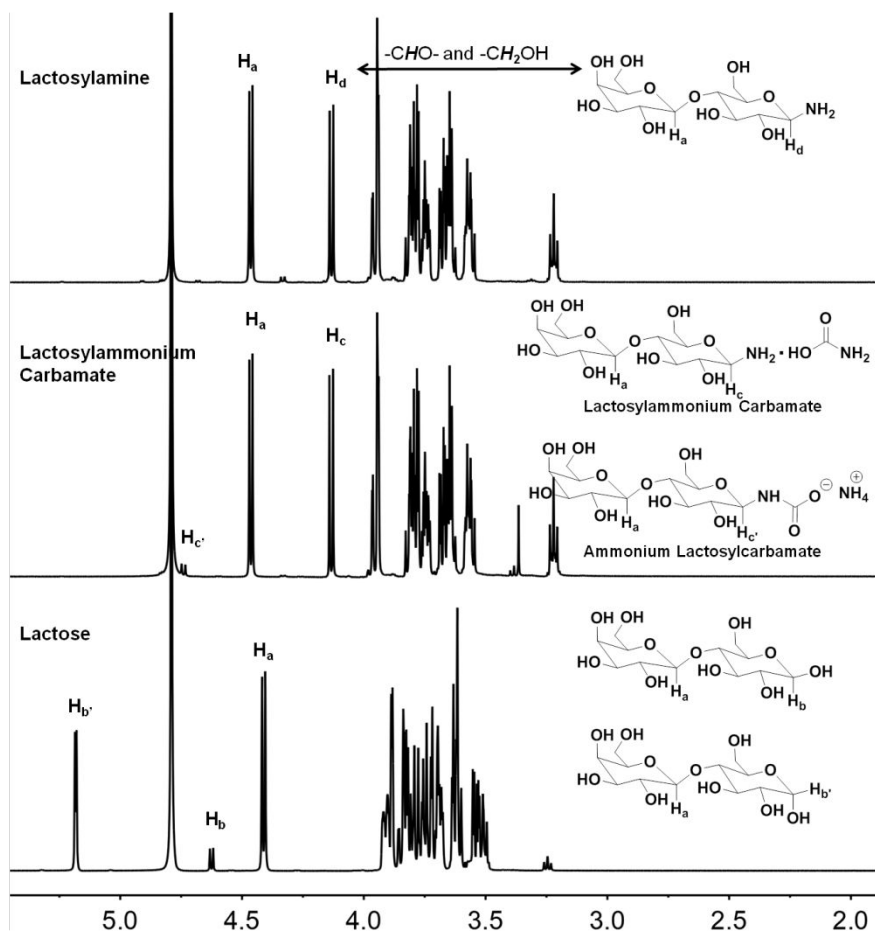


Figure S3. ^1H NMR (600 MHz) spectra of lactose, lactosylammonium carbamate and lactosylamine in D_2O . Please note that OH and NH are used to represent exchangeable hydrogens to maintain clarity, but the authors acknowledge that OD and ND are equally representative of the structure.

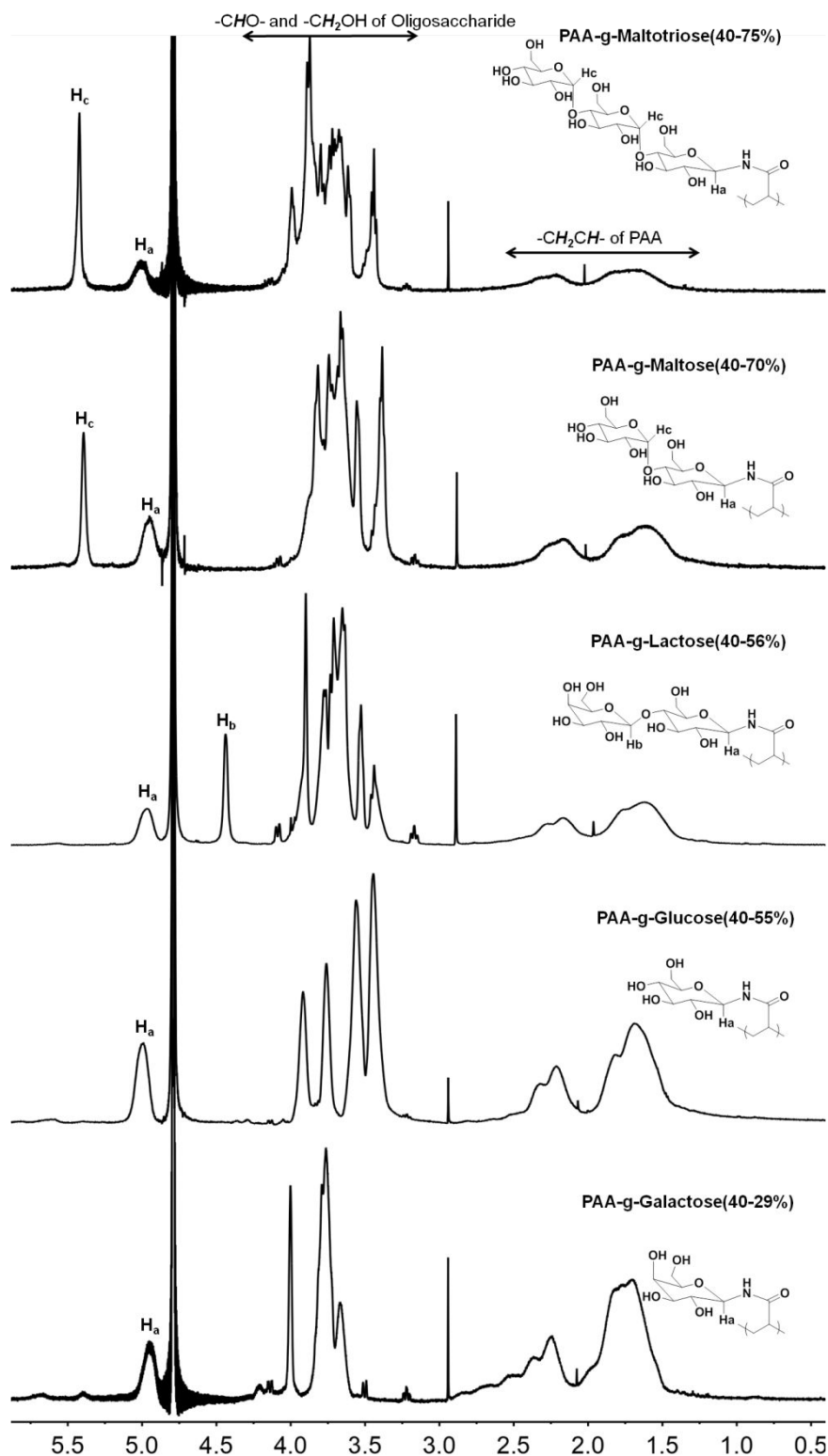


Figure S4. ^1H NMR (600 MHz) spectra of PAA-g-Galactose(40-29%), PAA-g-Glucose(40-55%), PAA-g-Lactose(40-56%), PAA-g-Maltose(40-70%), and PAA-g-Maltotriose(40-75%) in D_2O . Please note that OH and NH are used to represent exchangeable hydrogens to maintain clarity, but the authors acknowledge that OD and ND are

equally representative of the structure.

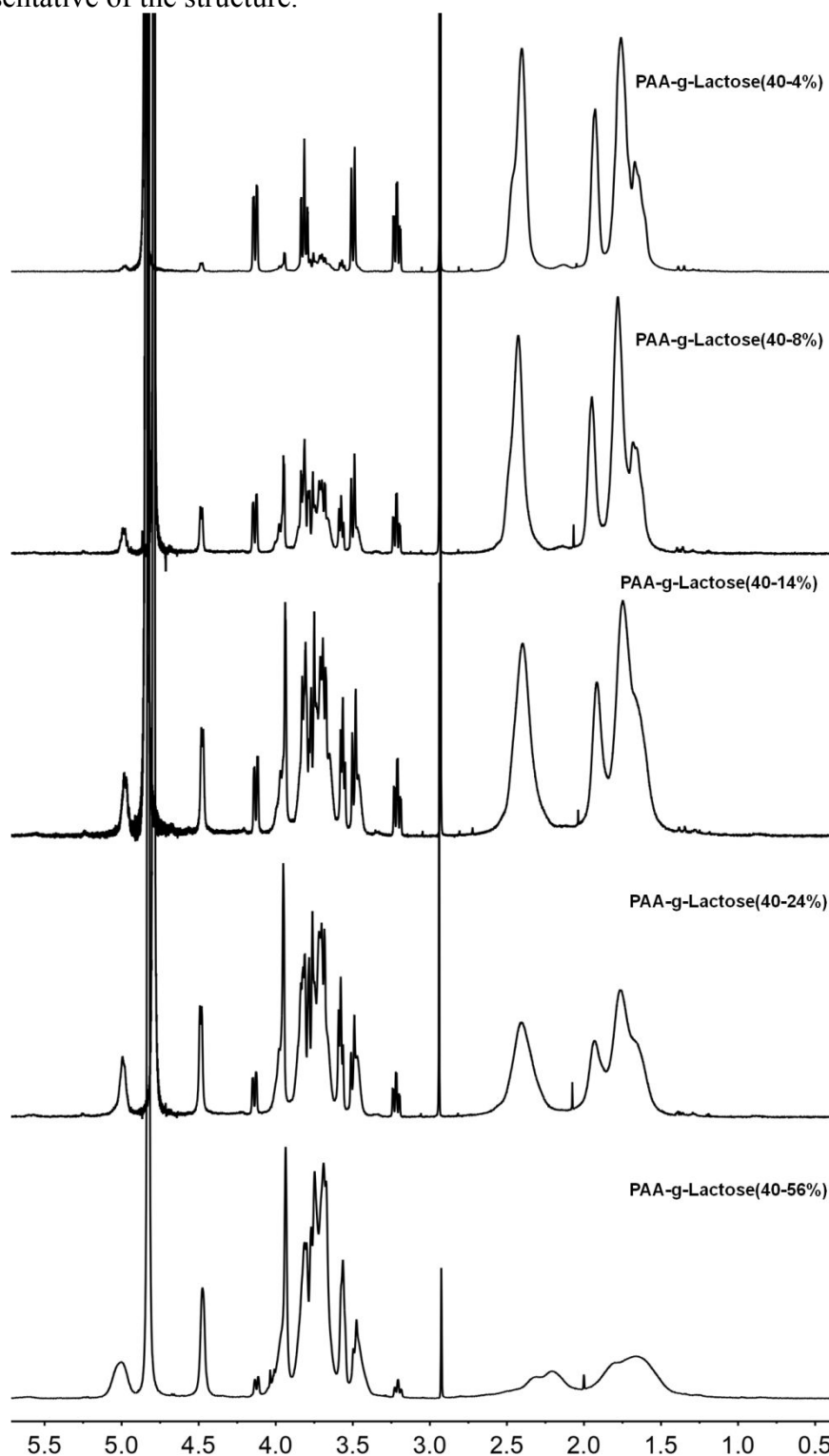


Figure S5. ^1H NMR (600 MHz) spectra of PAA-g-Lactose(40-4%), PAA-g-Lactose(40-8%), PAA-g-Lactose(40-14%), PAA-g-Lactose(40-24%), and PAA-g-Lactose(40-56%) in D_2O . Please note that OH and NH are used to represent exchangeable hydrogens to maintain clarity,

but the authors acknowledge that OD and ND are equally representative of the structure.

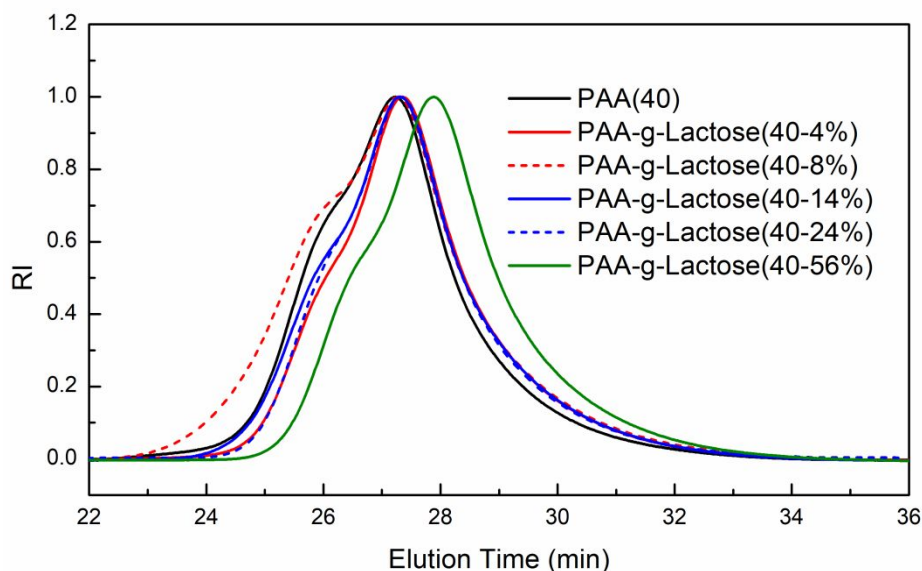


Figure S6. SEC trace of PAA (40), PAA-g-Lactose(40-4%), PAA-g-Lactose(40-8%), PAA-g-Lactose(40-14%), PAA-g-Lactose(40-24%), and PAA-g-Lactose(40-56%). PBS was used as the eluting solvent at a flow rate of 0.8 mL/min

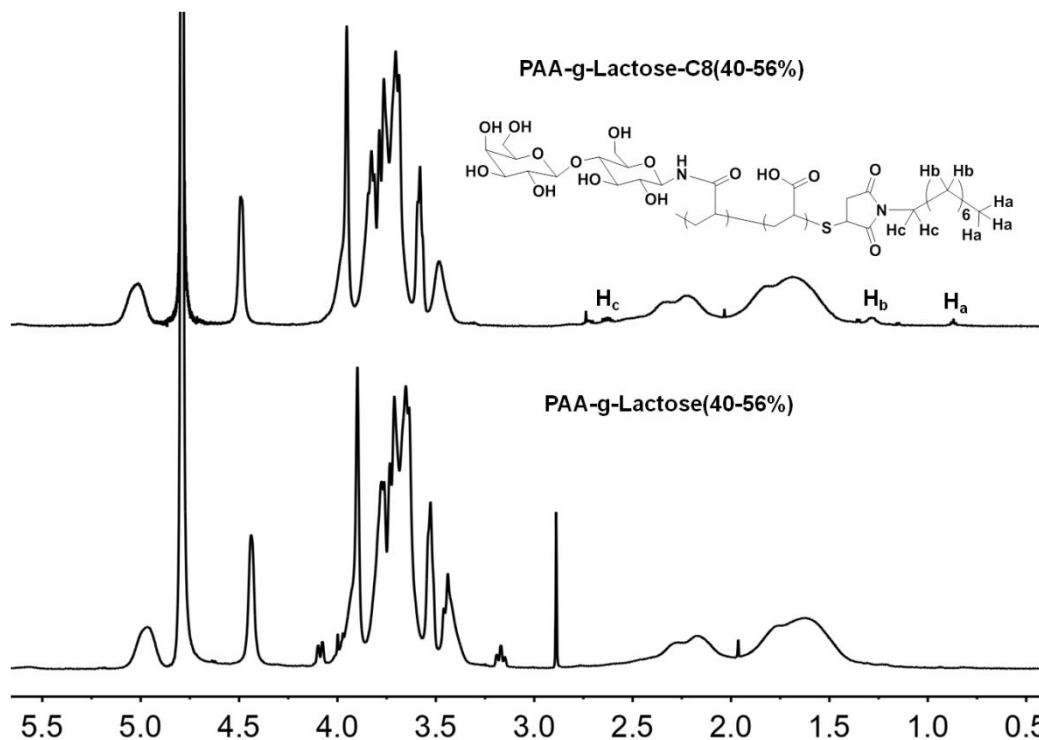


Figure S7. ¹H NMR (600 MHz) spectra of PAA-g-Lactose(40-56%) and PAA-g-Lactose-C8(40-56%) in D₂O. Please note that OH and NH are used to represent exchangeable hydrogens to maintain clarity, but the authors acknowledge that OD and ND are

equally representative of the structure.

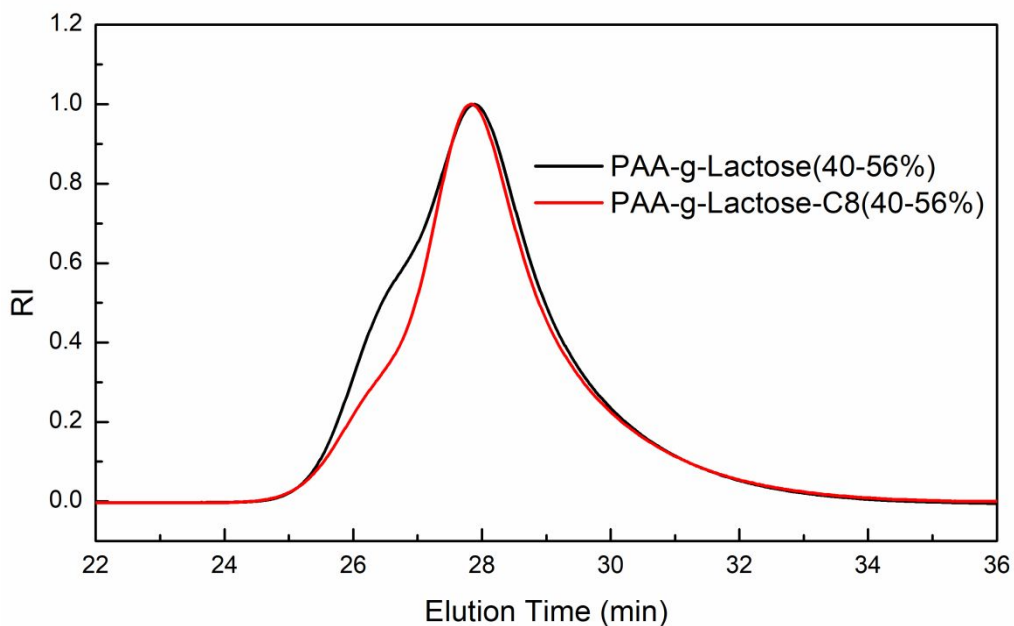


Figure S8. SEC trace of PAA-g-Lactose(40-56%) and PAA-g-Lactose-C8(40-56%). PBS was used as the eluting solvent at a flow rate of 0.8 mL/min

Table S1: Molecular weights of polymers measured by SEC relative to pMAA

Samples	M_n (kD)	\bar{D}
PAA-CTA(40)	64	1.19
PAA(40)	69	1.32
PAA-CTA(80)	113	1.35
PAA(80)	117	1.48
PAA-g-galactose(40-29%)	34	1.40
PAA-g-glucose(40-55%)	35	1.34
PAA-g-lactose(40-56%)	53	1.30
PAA-g-maltose(40-70%)	55	1.32
PAA-g-maltotriose(40-75%)	59	1.32
PAA-g-lactose(40-4%)	65	1.36
PAA-g-lactose(40-8%)	75	1.46
PAA-g-lactose(40-14%)	68	1.36
PAA-g-lactose(40-24%)	67	1.29
PAA-g-lactose(40-56%)	53	1.30
PAA-g-lactose(80-55%)	87	1.56
PAA-g-lactose-C8(40-56%)	52	1.27

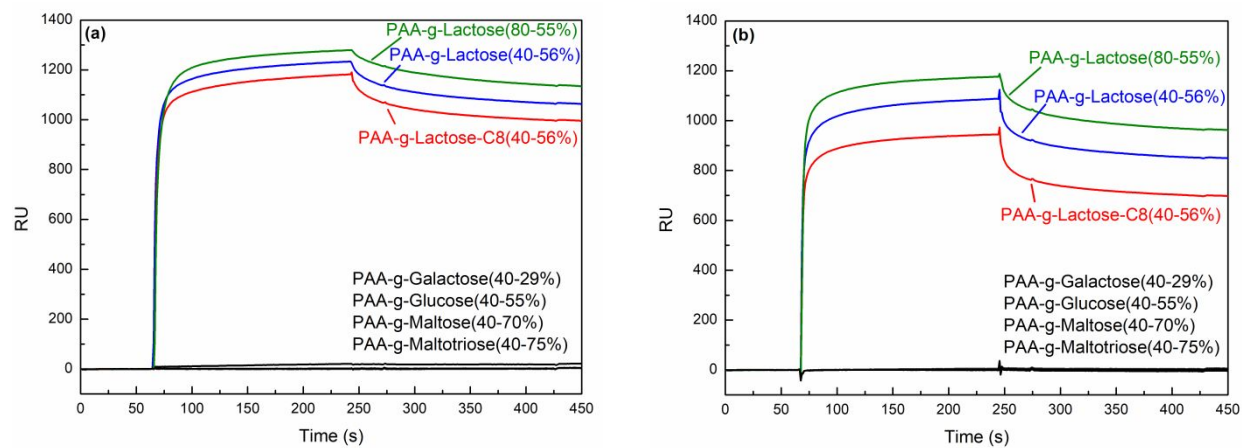


Figure S9. SPR sensorgrams for the binding interactions between glycopolymers and (a) galectin 3 and (b) galectin 1 obtained by flowing 0.1 mg/mL glycopolymers over galectin-modified sensor chip surface.

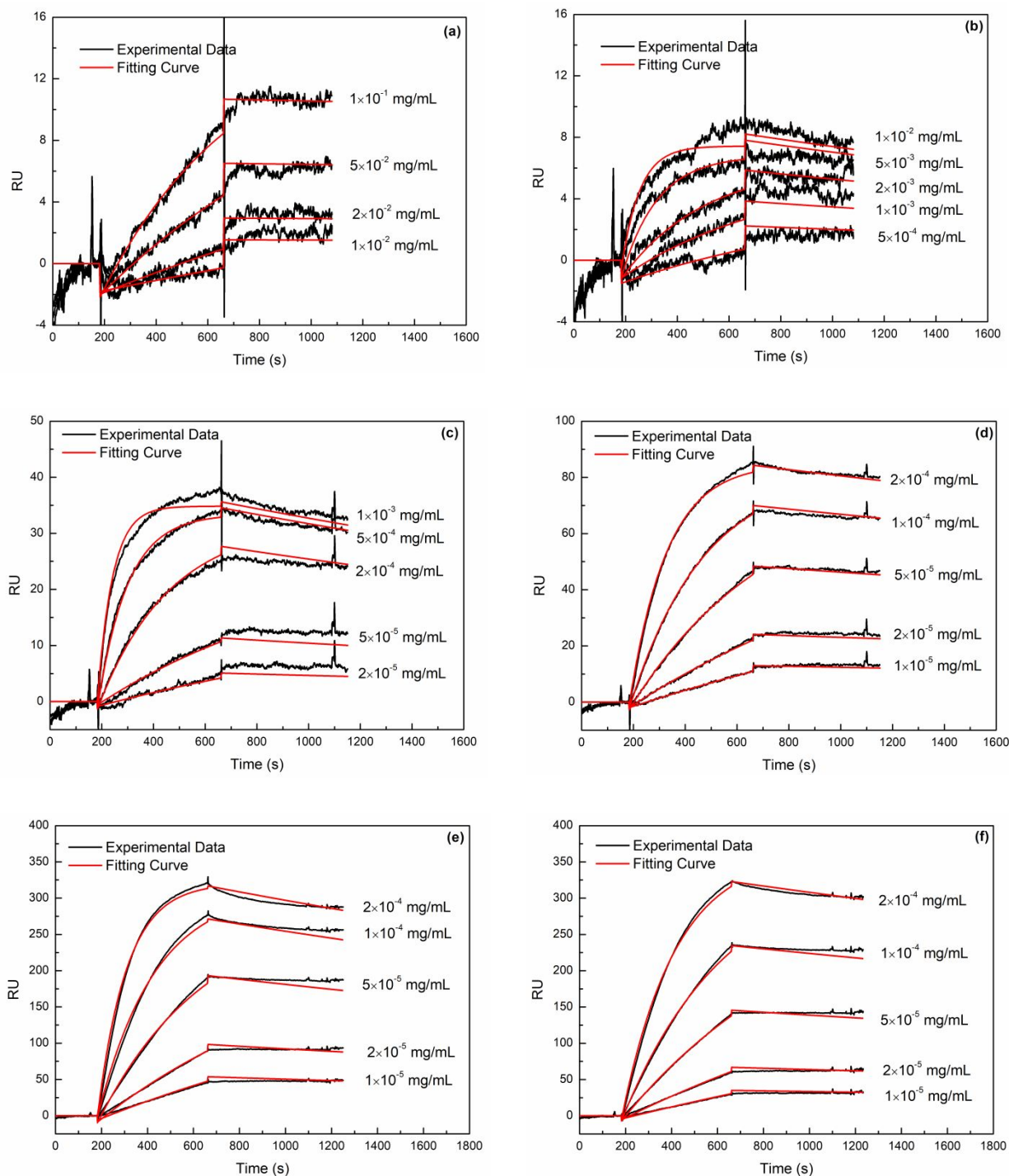


Figure S10. SPR sensorgrams and fitting curves for the binding interactions between galectin 3 and (a) PAA-g-Lactose(40-4%), (b) PAA-g-Lactose(40-8%), (c) PAA-g-Lactose(40-14%) (d) PAA-g-Lactose(40-24%) (e) PAA-g-Lactose(40-56%), and (f) PAA-g-Lactose(80-55%) obtained by flowing PAA-g-Lactose graft polymers at varying concentrations over galectin 3-modified sensor chip surface. The black curves represent experimental data, while the red curves represent model fits.

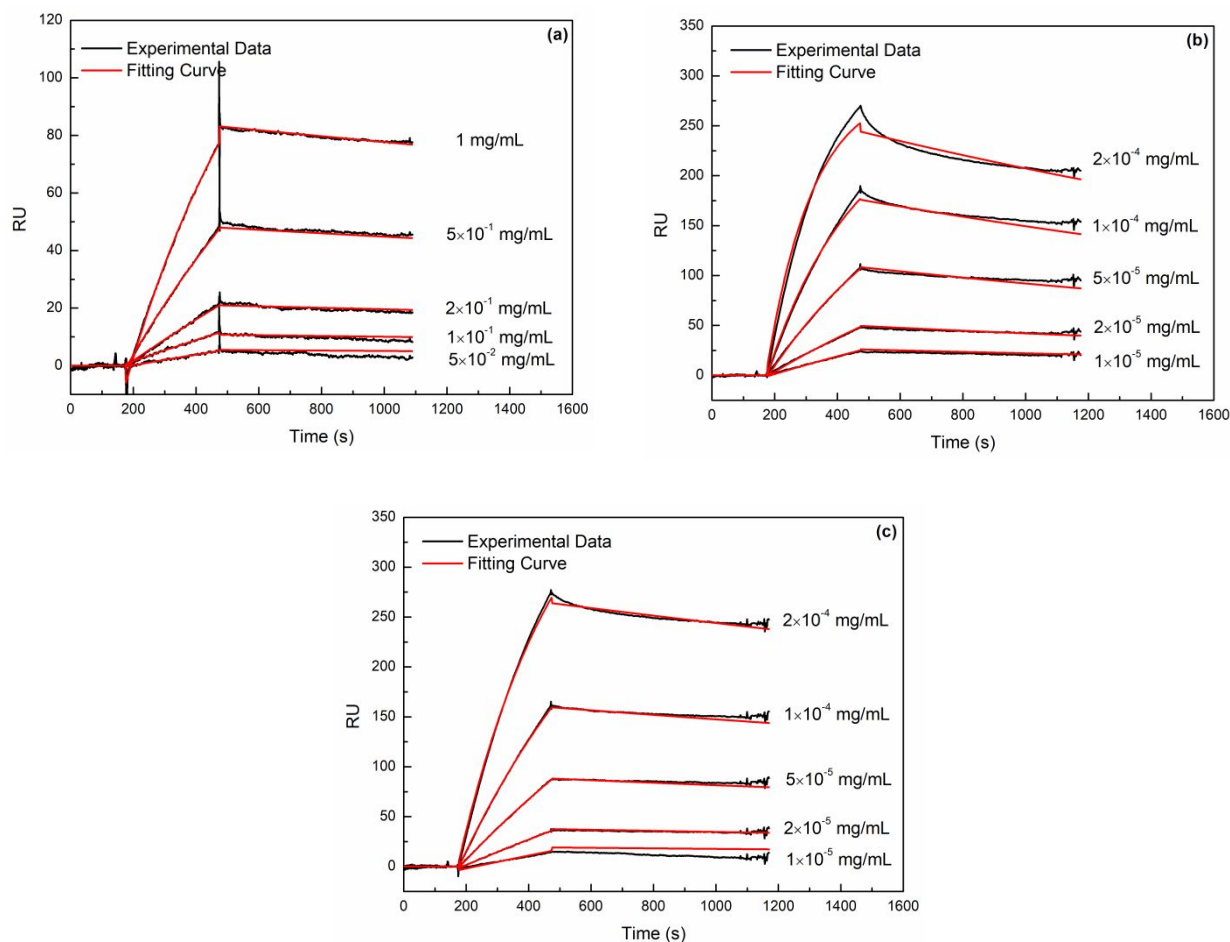


Figure S11. SPR sensorgrams and fitting curves for the binding interactions between galectin 1 and (a) PAA-g-Lactose(40-24%) (b) PAA-g-Lactose(40-56%), and (c) PAA-g-Lactose(80-55%) obtained by flowing PAA-g-Lactose graft polymers at varying concentrations over galectin 1-modified sensor chip surface. The black curves represent experimental data, while the red curves represent model fits.

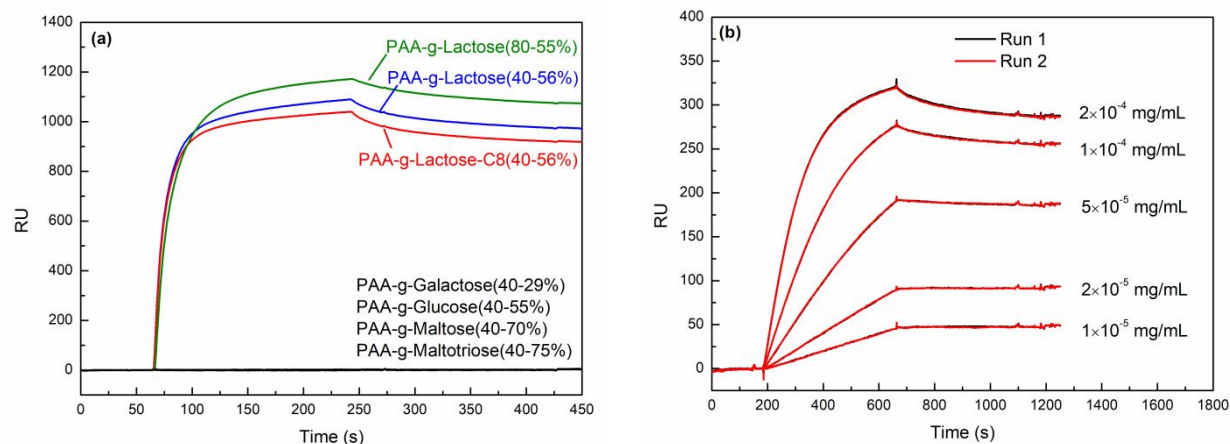


Figure S12. (a) SPR sensorgrams for the binding interactions between glycopolymers and galectin 3 obtained by flowing 0.01 mg/mL glycopolymers over galectin 3-modified sensor chip surface. (b) SPR sensorgrams for the binding interactions between PAA-g-Lactose(40-56%) and galectin 3 obtained by flowing PAA-g-Lactose(40-56%) over galectin 3-modified sensor chip surface. All runs were repeated twice to check the reproducibility of SPR experiments.