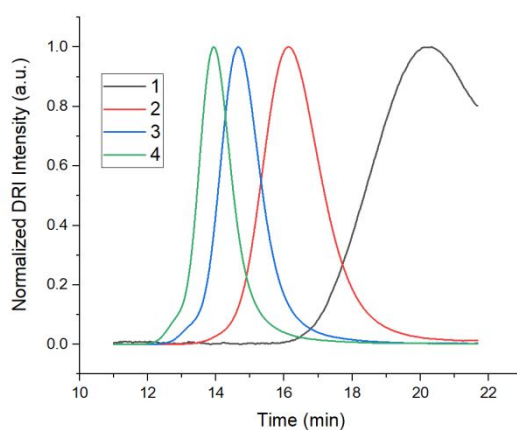
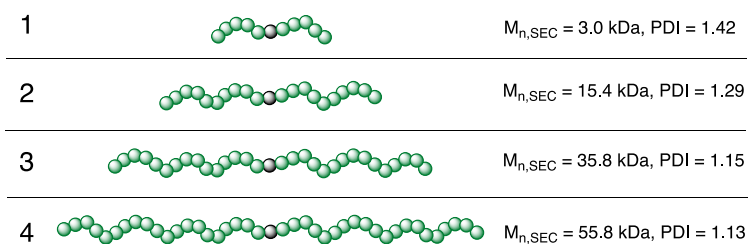


## Supporting Information

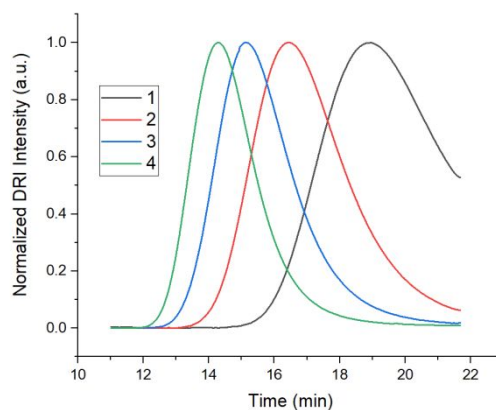
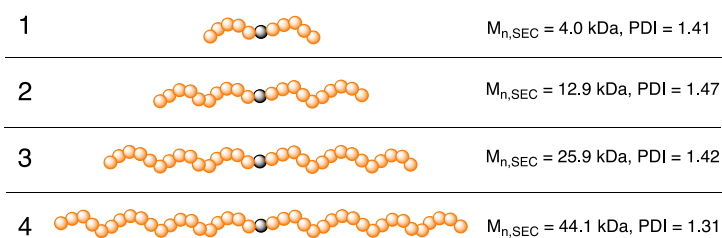
### Robot-assisted synthesis of structure-controlled star-cluster hydrogels with targeted mechano-physical properties for biomedical applications

*Vianna F. Jafari, Shirin Nour, Ross A. L. Wylie, Daniel E. Heath, Greg G. Qiao*



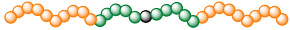
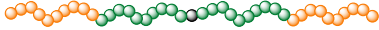
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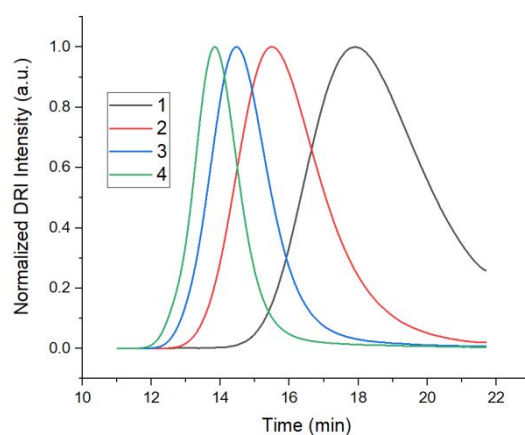


#### **Variant N:**

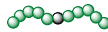





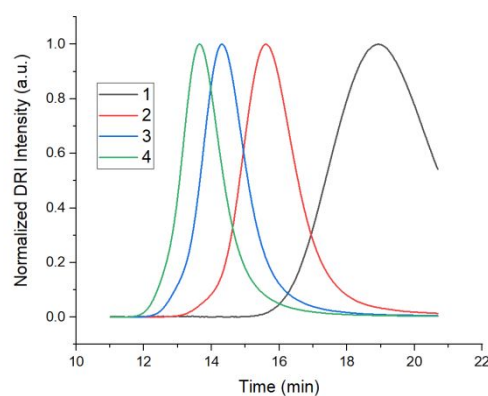
### Variant B-NDN:

1		$M_{n,SEC} = 6.1 \text{ kDa}$ , PDI = 1.40
2		$M_{n,SEC} = 21.6 \text{ kDa}$ , PDI = 1.40
3		$M_{n,SEC} = 41.1 \text{ kDa}$ , PDI = 1.30
4		$M_{n,SEC} = 61.3 \text{ kDa}$ , PDI = 1.18



### Variant B-DND:

1		$M_{n,SEC} = 4.1 \text{ kDa}$ , PDI = 1.36
2		$M_{n,SEC} = 20.6 \text{ kDa}$ , PDI = 1.17
3		$M_{n,SEC} = 45.0 \text{ kDa}$ , PDI = 1.21
4		$M_{n,SEC} = 66.7 \text{ kDa}$ , PDI = 1.19



**Figure S1.** Detailed chemical structure of linear pre-polymer block copolymers synthesized using the automated platform through 4 steps, and their GPC spectra and MW analysis.

**Injectability:**

To evaluate the injectability of semi bio-Fenton RAFT hydrogels, the reaction solution (pre-polymer) which was prepared in the robot was transferred to a biosafety cabinet and sterilized through a 0.45 nylon syringe filter. The prepolymer solution was then mixed with PEGDA crosslinker and transferred to a 1- or 3-mL syringe. An 18-gauge blunt needle was then used to inject gels in situ to culture plate wells for further testing.