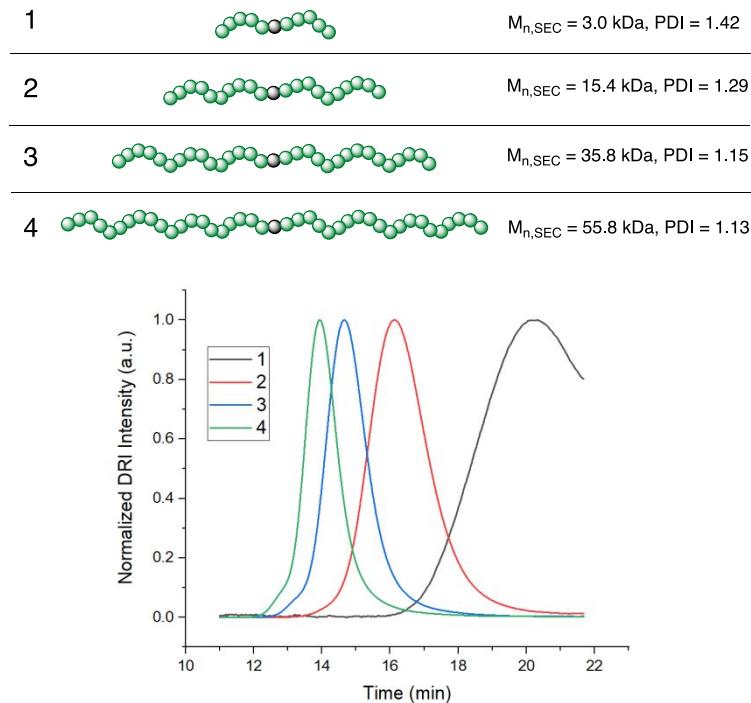


Supporting Information

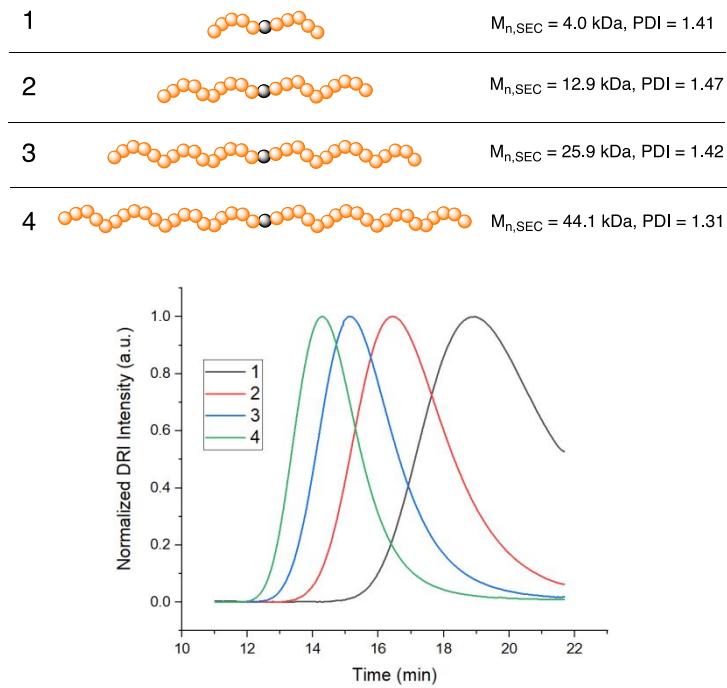
Robot-assisted synthesis of structure-controlled star-cluster hydrogels with targeted mechano-physical properties for biomedical applications

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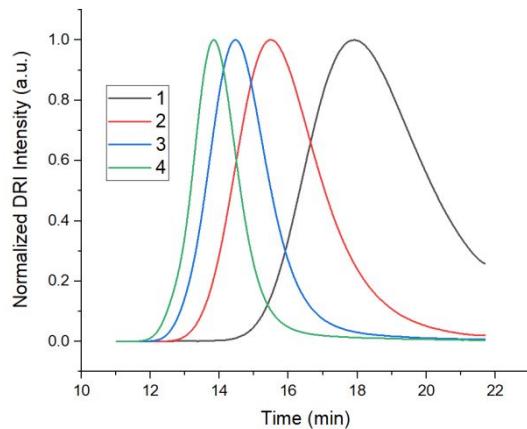
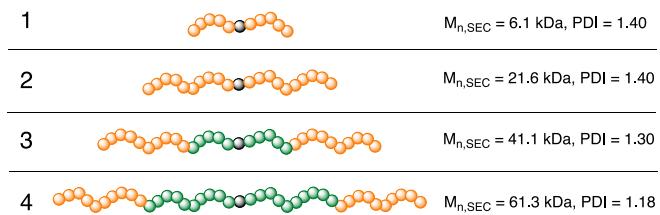
Variant D:



Variant N:



Variant B-NDN:



Variant B-DND:

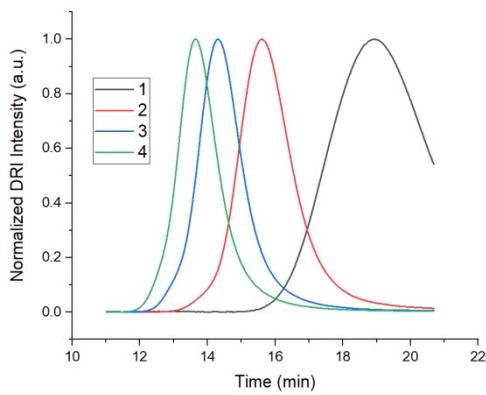
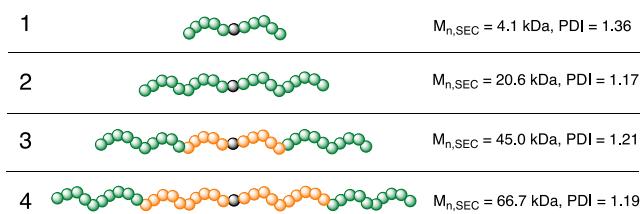


Figure S1. Detailed chemical structure of linear pre-polymer block copolymers synthesized using the automated platform through 4 steps, and their GPC spectra and MW analysis.

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.