

SUPPORTING INFORMATION

Covalent co-assembly between resilin-like polypeptide and peptide amphiphile into hydrogels with controlled nanostructure and improved mechanical properties

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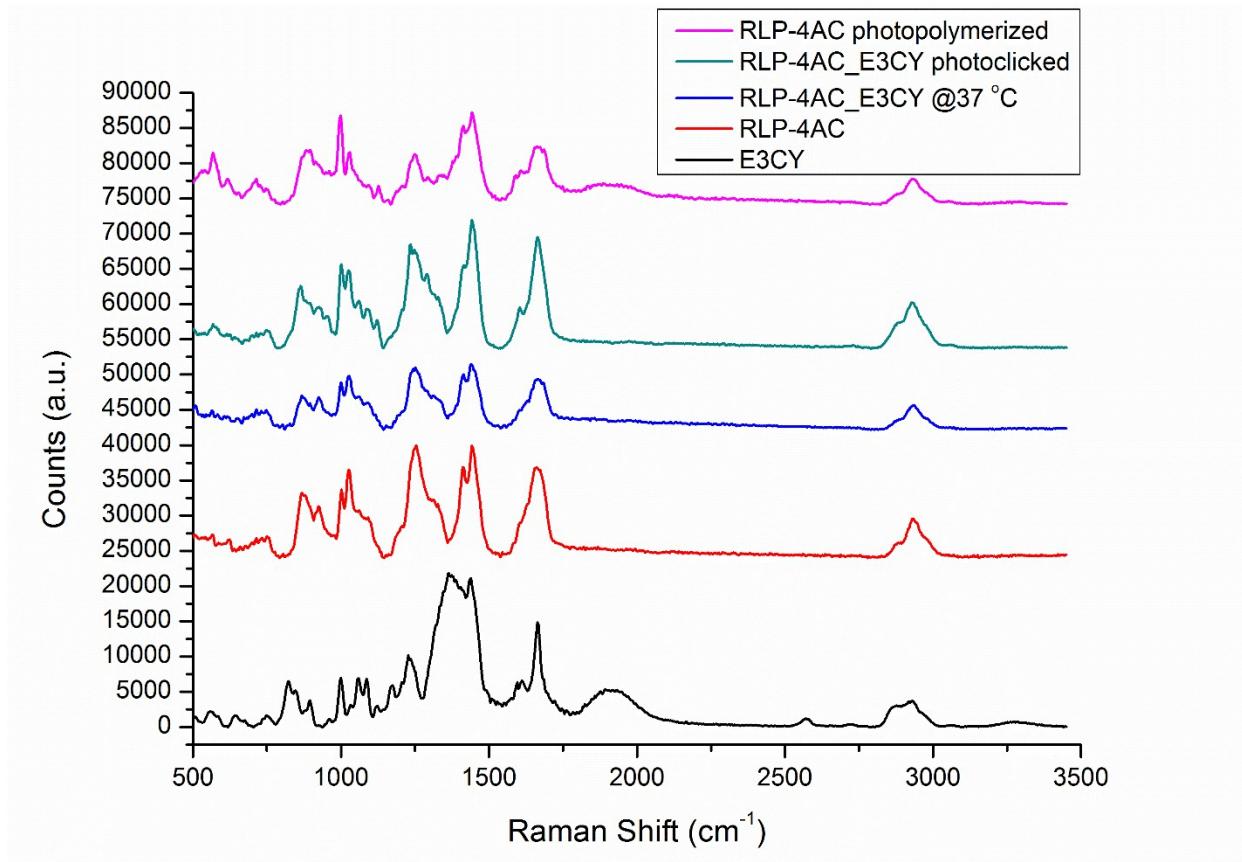


Figure S1. Raman spectra for E3CY, RLP-4AC, RLP_E3CY@37°C, photoclicked RLP-4AC_E3CY and photopolymerized RLP-4AC. Laser excitation wavelength: 785 nm. Laser power ~63 mW. Integration times: E3CY (25s); RLP-4AC (90s); RLP_E3CY@37°C (45s); photoclicked RLP-4AC_E3CY (45s); photopolymerized RLP-4AC (60s). Spectra are baseline corrected and spatially offset for clarity.

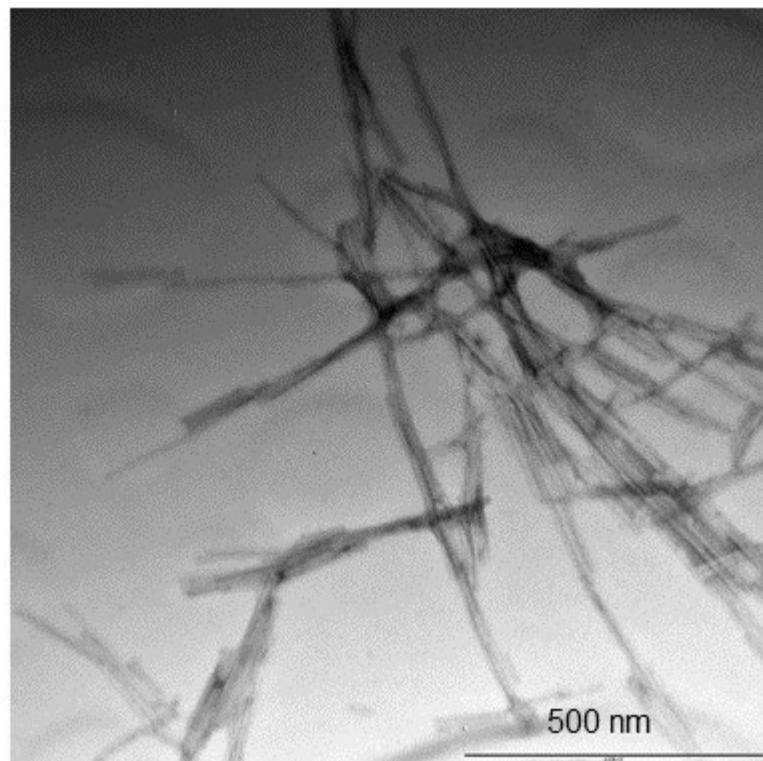


Figure S2. TEM micrograph of E3CY after photo irradiation showing the stability of the PA nanofibers to photodegradation.

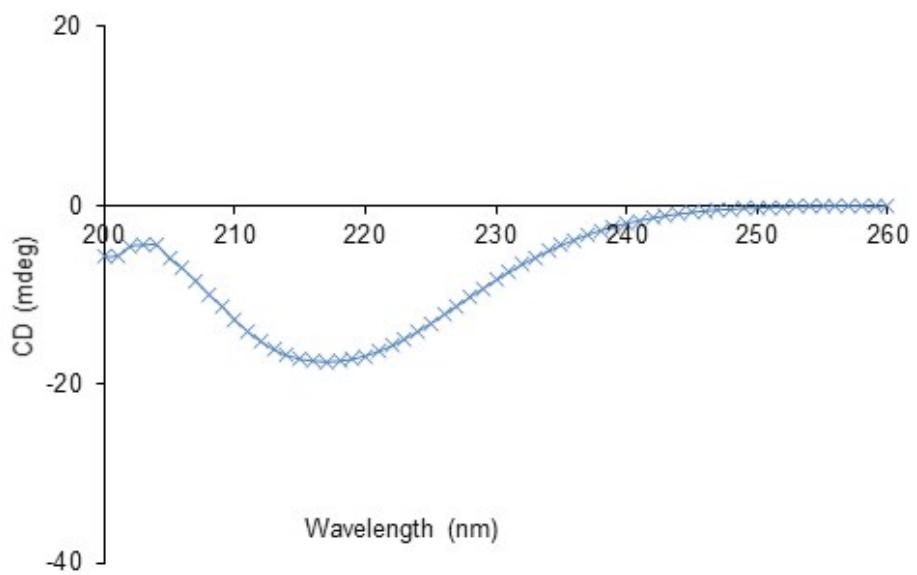


Figure S3. Circular dichroism spectra for E3CY solution (0.05% wt) in PBS 1x at 25 °C.

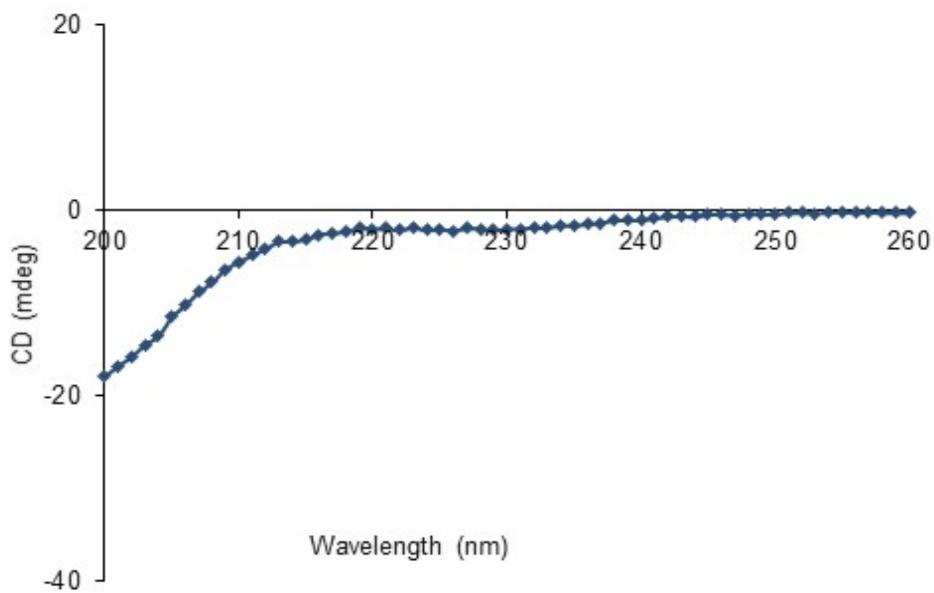


Figure S4. Circular dichroism spectra for RLP-4AC solution (0.25% wt) in PBS 1x at 25 °C.

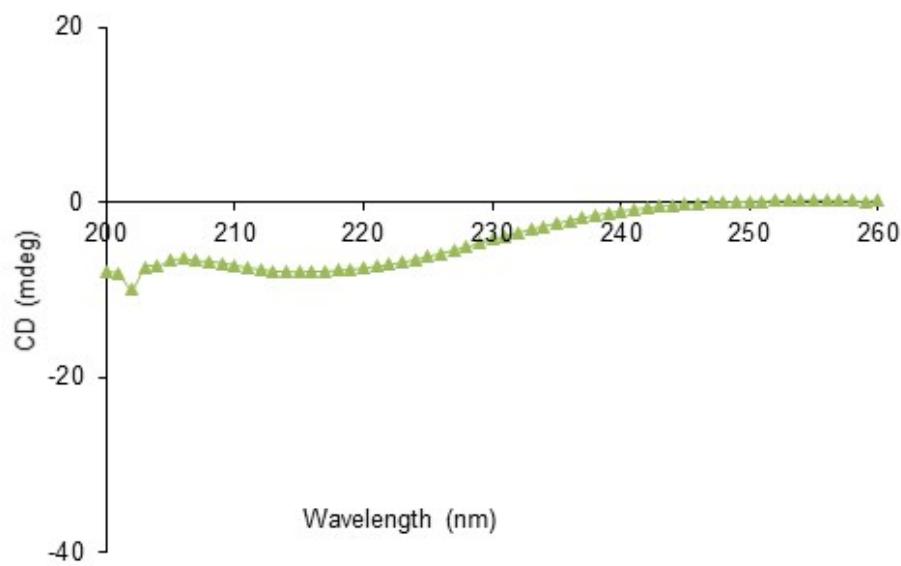


Figure S5. Circular dichroism spectra for the mixture of RLP-4AC (0.25%) with E3CY (0.01% wt) after 6 h of incubation at 37 °C.

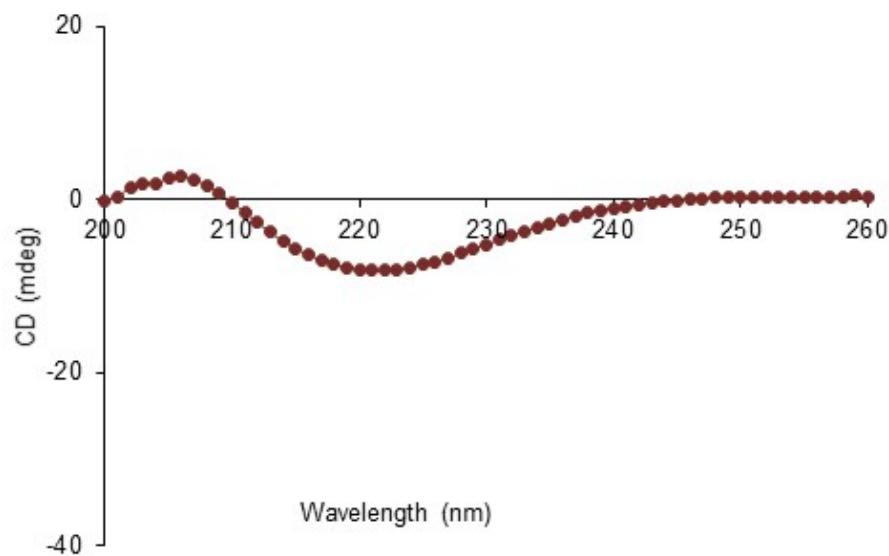


Figure S6. Circular dichroism spectra for the mixture of RLP-4AC (0.25%) with E3CY (0.025% wt) after 6 h of incubation at 37 °C.

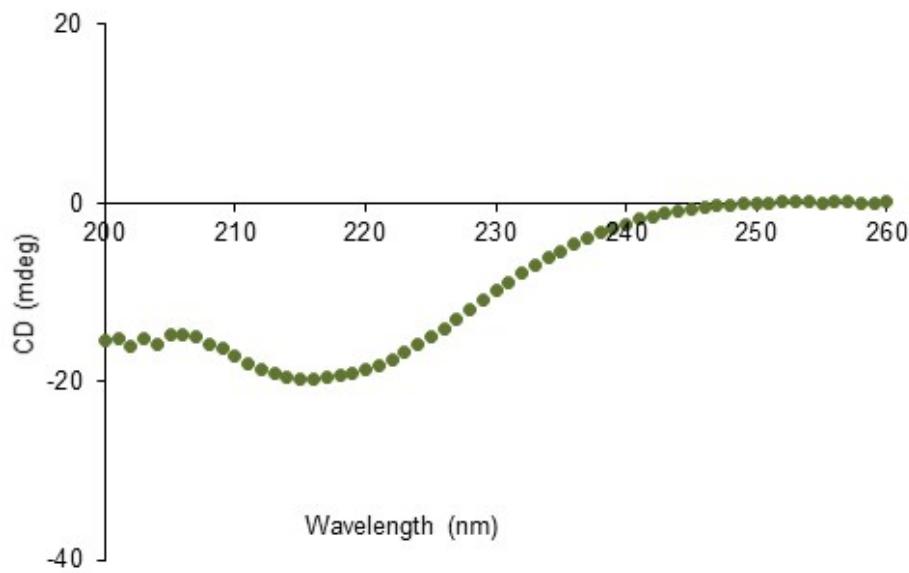


Figure S7. Circular dichroism spectra for the mixture of RLP-4AC (0.25%) with E3CY (0.05% wt) after 6 h of incubation at 37 °C.

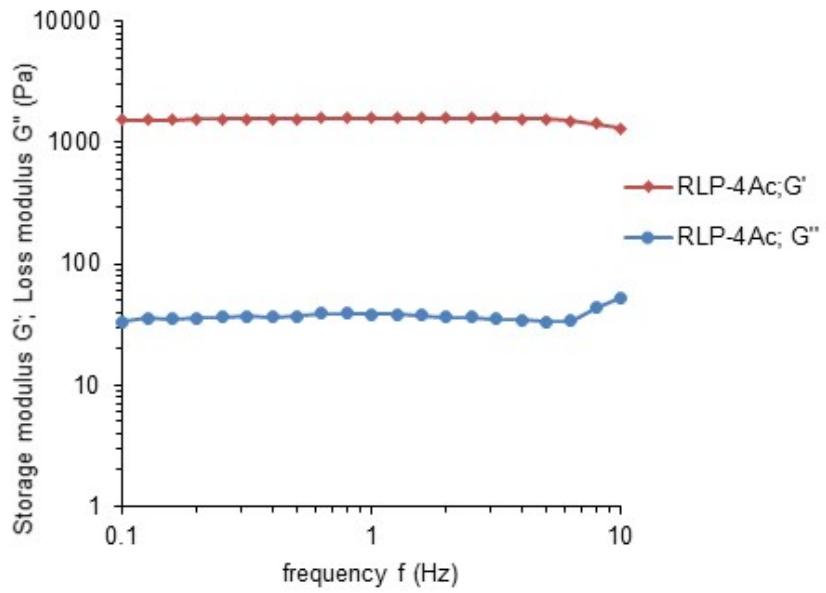


Figure S8. Frequency sweep rheographs for 5% wt RLP-4AC photopolymerized hydrogels.

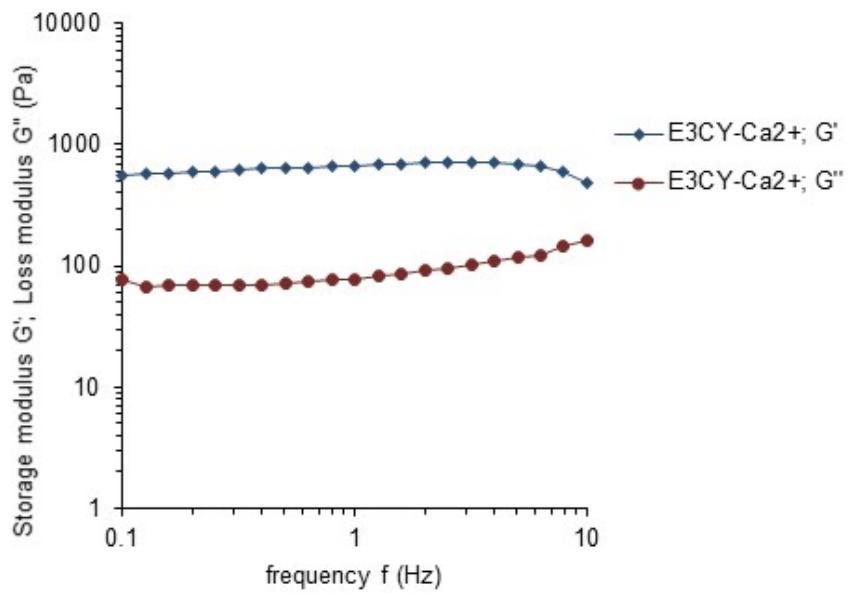


Figure S9. Frequency sweep rheographs for 1% wt E3CY-Ca²⁺ hydrogels.

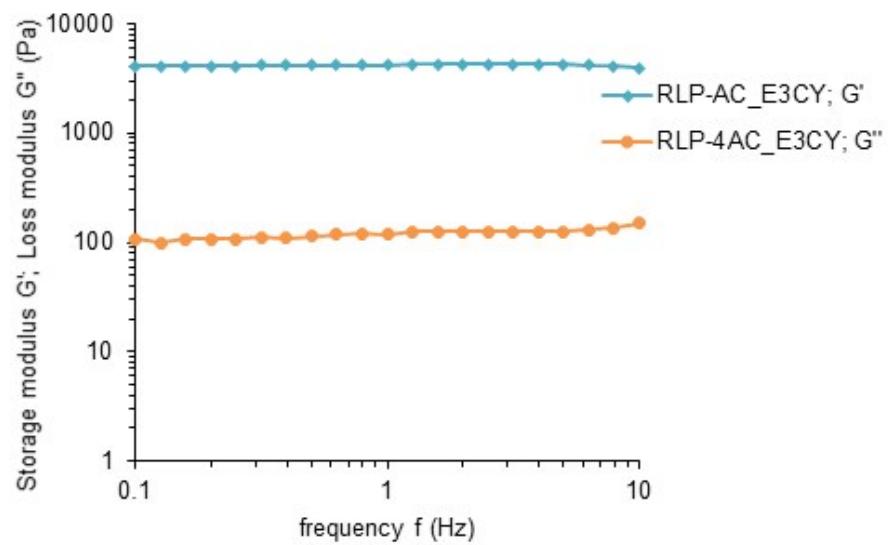


Figure S10. Frequency sweep rheographs for RLP-4AC_E3CY hydrogels synthesized by thiol-ene photoclicked at 1 and 5% wt final concentrations of E3CY and RLP-4AC.

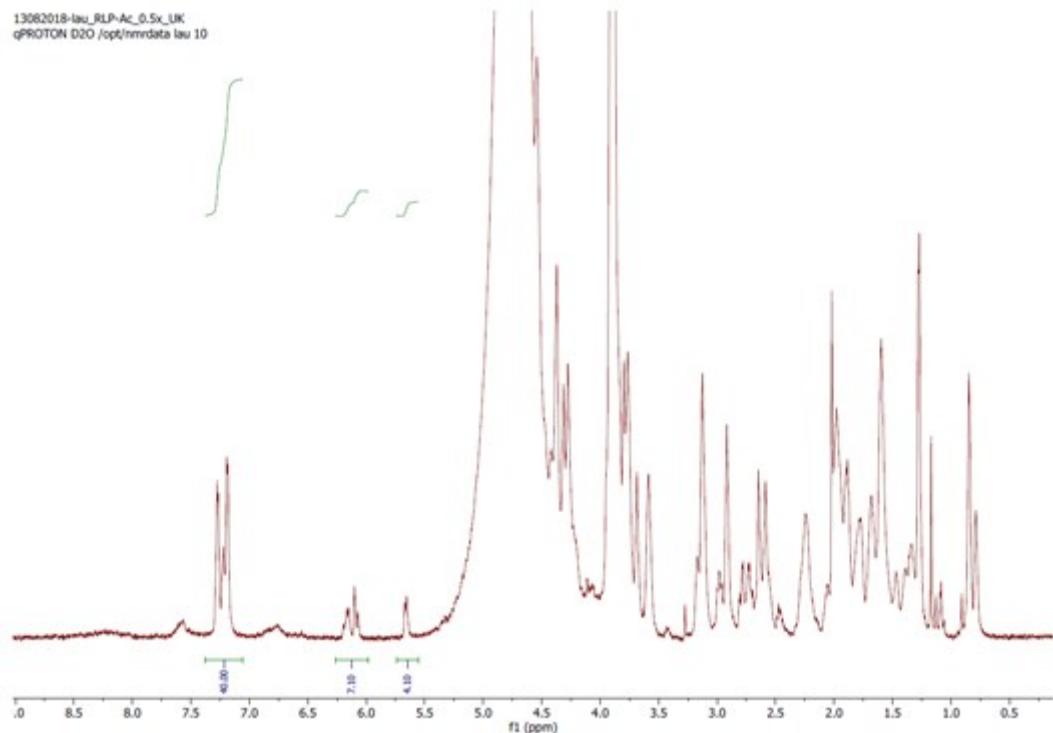


Figure S11. ^1H NMR spectrum showing the vinylic protons of acrylamide integrated against the lysine amine protons of RLP backbone.

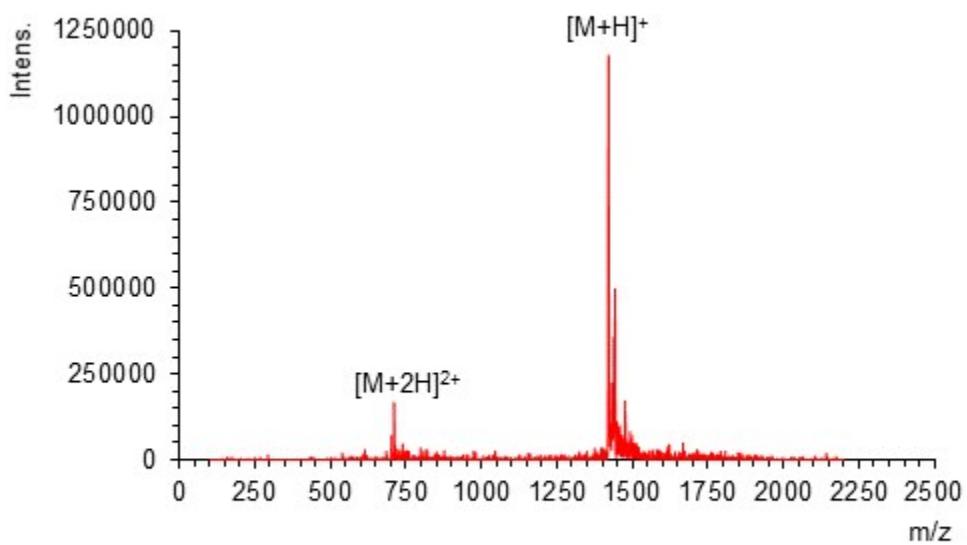


Figure S12. ESI-MS spectrum of E3CY peptide amphiphile

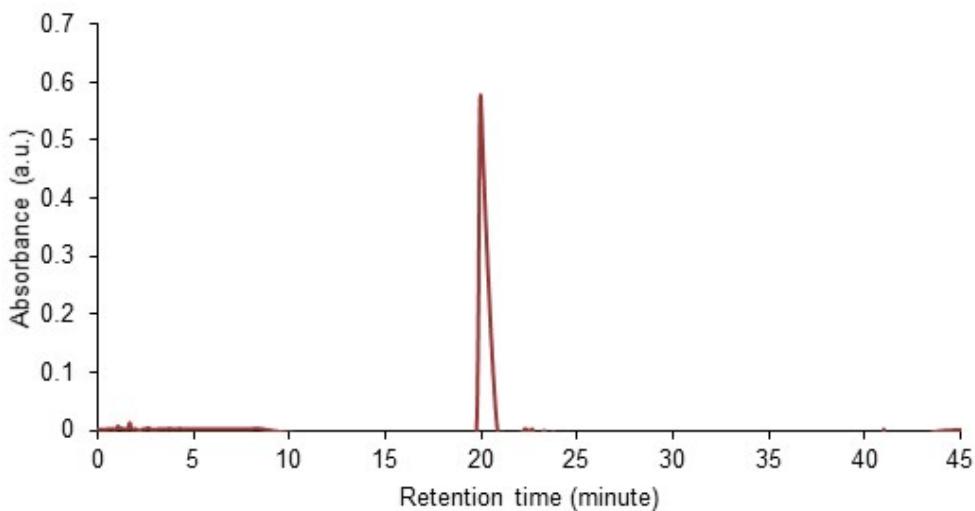


Figure S13. HPLC trace of E3CY peptide amphiphile