

Supplementary Information

Peptide-Reinforced Photocrosslinkable PEG-based Hydrogels

*Sam Russell, Daseul Jang, Jessica Thomas, Patrick Grysan, Linus Sprandl, Markus Biesalski, LaShanda T.J Korley, Nico Bruns**

Sam Russell, Linus Sprandl, Markus Biesalski, Nico Bruns

Department of Chemistry, Technical University of Darmstadt, Peter-Grünberg-Straße 4, 64287 Darmstadt, Germany.

Sam Russell, Nico Bruns

Centre for Synthetic Biology, Technical University of Darmstadt, Peter-Grünberg-Straße 4, 64287 Darmstadt, Germany.

Department of Pure and Applied Chemistry, University of Strathclyde, Thomas Graham Building, 295 Cathedral Street, Glasgow G1 1XL, U.K.

Patrick Grysan

Materials Research and Technology, Luxembourg Institute of Science and Technology,
5 Avenue des Hauts-Fourneaux, Esch-sur-Alzette, L-4362 Luxembourg

Daseul Jang, Jessica Thomas, LaShanda T.J Korley

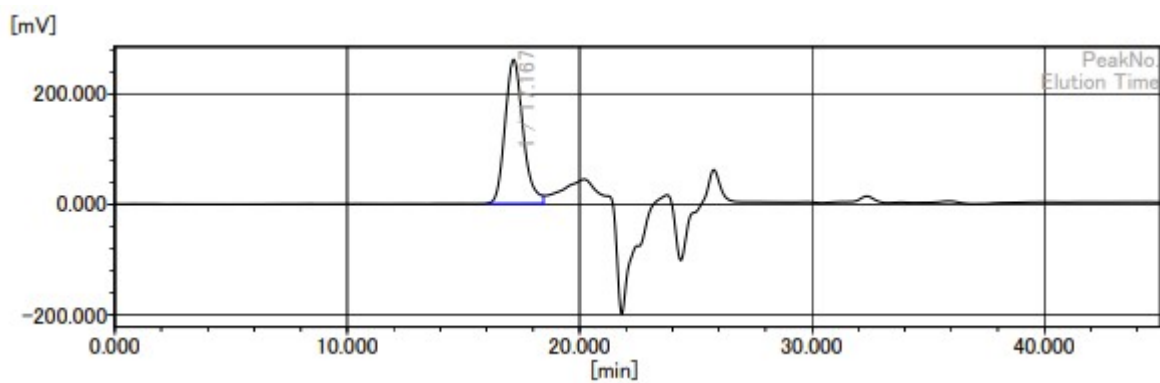
Department of Materials Science and Engineering, University of Delaware, 127 The Green, 209 DuPont Hall, Newark, DE, 19716 USA

Department of Chemical and Biomolecular Engineering, University of Delaware, 150 Academy Street, Newark, DE, 19716 USA

E-Mail: nico.bruns@tu-darmstadt.de

Table S1. Summary of the weight ratios of the constituents of the polymer networks

Sample	Composition of polymer networks					Initial Reaction Mixture		
	PHEA : Crosslinker	PHEA (wt%)	PEG (wt%)	PBLA (wt%)	2-HEA (μ L)	Crosslinker (mg)	Initiator (mg)	DMSO (μ L)
PHEA- <i>l</i> -(PBLA ₂₀ - <i>b</i> -PEG- <i>b</i> -PBLA ₂₀)	30:70	30	16	54	120	280	8	680
	50:50	50	12	38	200	200		600
	70:30	70	7	23	280	120		520
PHEA- <i>l</i> -(PBLA ₂₅ - <i>b</i> -PEG- <i>b</i> -PBLA ₂₅)	30:70	30	20	50	120	280		680
	50:50	50	14	36	200	200		600
	70:30	70	9	21	280	120		520
PHEA- <i>l</i> -PEG	30:70	30	70	-	120	280		680
	50:50	50	50	-	200	200		600
	70:30	70	30	-	280	120		520

Figure S1. GPC elugram of PBLA₂₀-*b*-PEG-*b*-PBLA₂₀ triblock copolymer

	[min]	[mV]	[mol]	Mn	10396
Peak Start	16.083	1.675	43958	Mw	12502
Peak Top	17.167	261.567	12116	Mz	14702
Peak End	18.450	15.083	3028	Mz+1	17029
				Mv	12502
Height[mV]			260.773	Mp	12117
Area[mV s]			14051.204	Mz/Mw	1.176
Area[%]			100.000	Mw/Mn	1.203
[Eta]			12501.78665	Mz+1/Mw	1.362

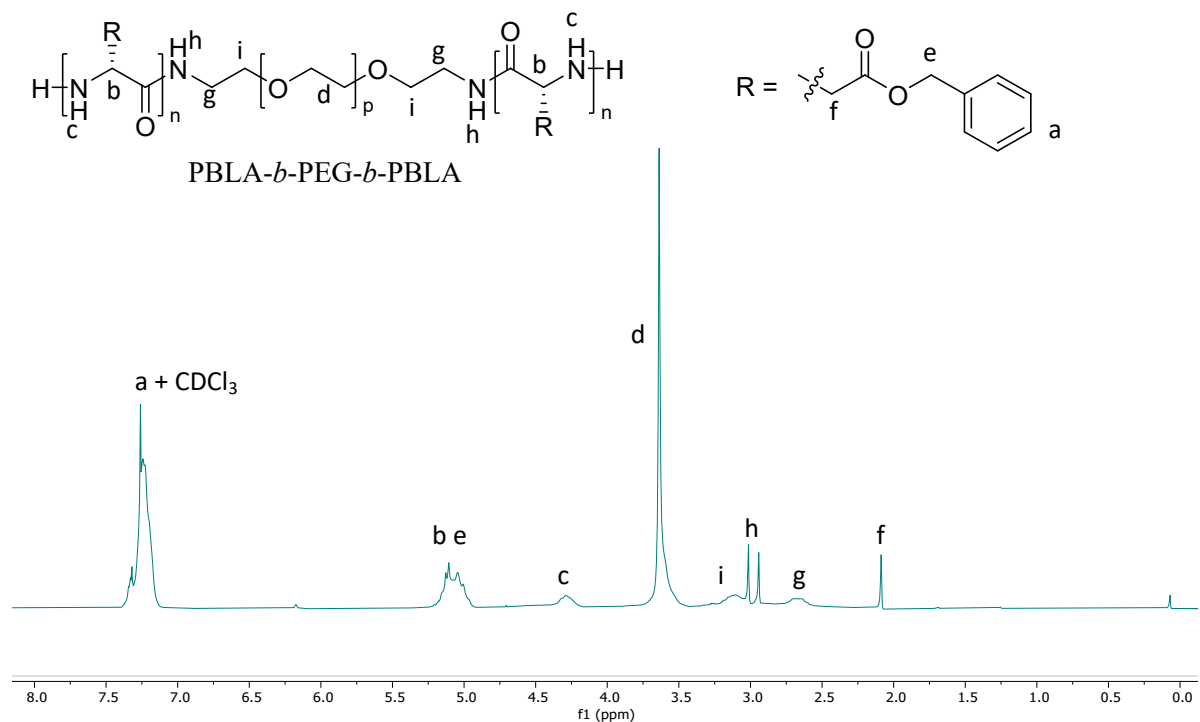


Figure S2. ¹H NMR spectra of PBLA-*b*-PEG-*b*-PBLA triblock copolymer

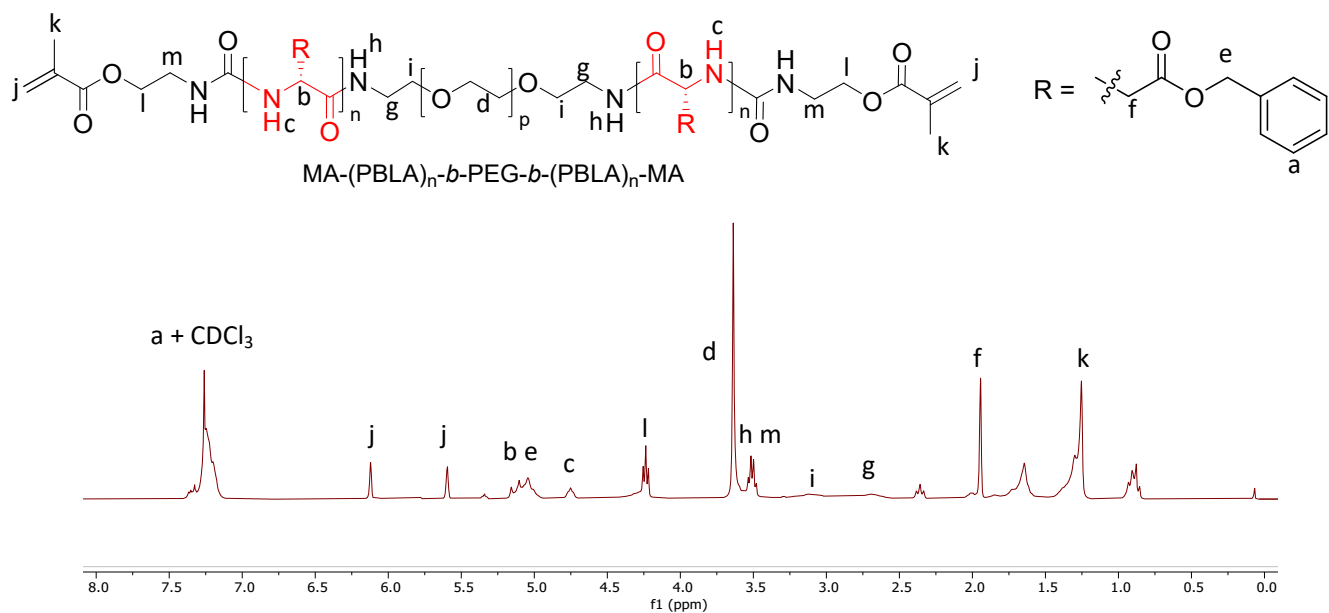


Figure S3. ¹H NMR spectra of MA-PBLA-*b*-PEG-*b*-PBLA-MA triblock copolymer

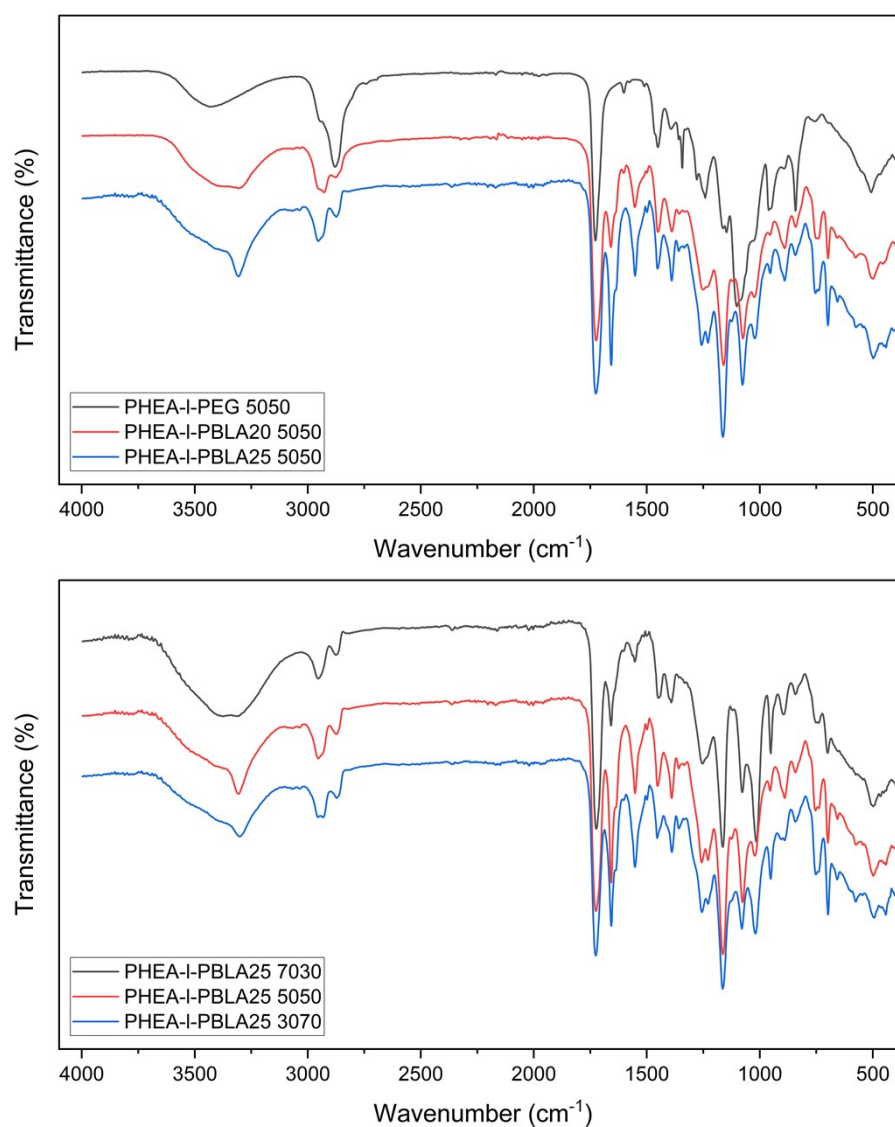


Figure S4. ATR-FT-IR spectra showing A) PHEA-*l*-PBLA₂₀-*b*-PEG-*b*-PBLA₂₀, PHEA-*l*-PBLA₂₅-*b*-PEG-*b*-PBLA₂₅ and PHEA-*l*-PEG, with 50:50 ratio of peptide to PHEA. B) Comparison of different compositions of PHEA-*l*-PBLA₂₅-*b*-PEG-*b*-PBLA₂₅ networks (30:70, 50:50 and 70:30 wt%).

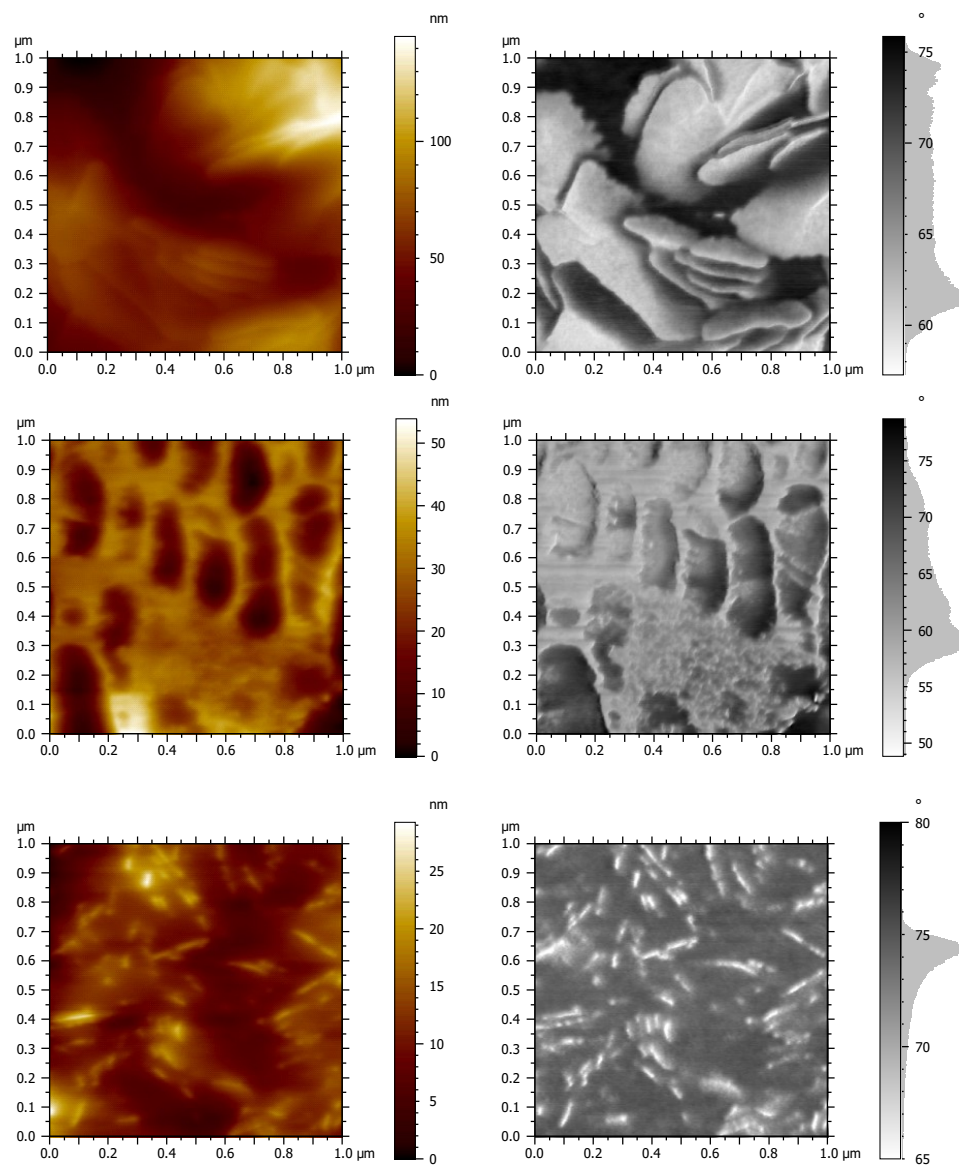


Figure S5. AFM images of PHEA-*l*-PEG 70:30 wt% networks.

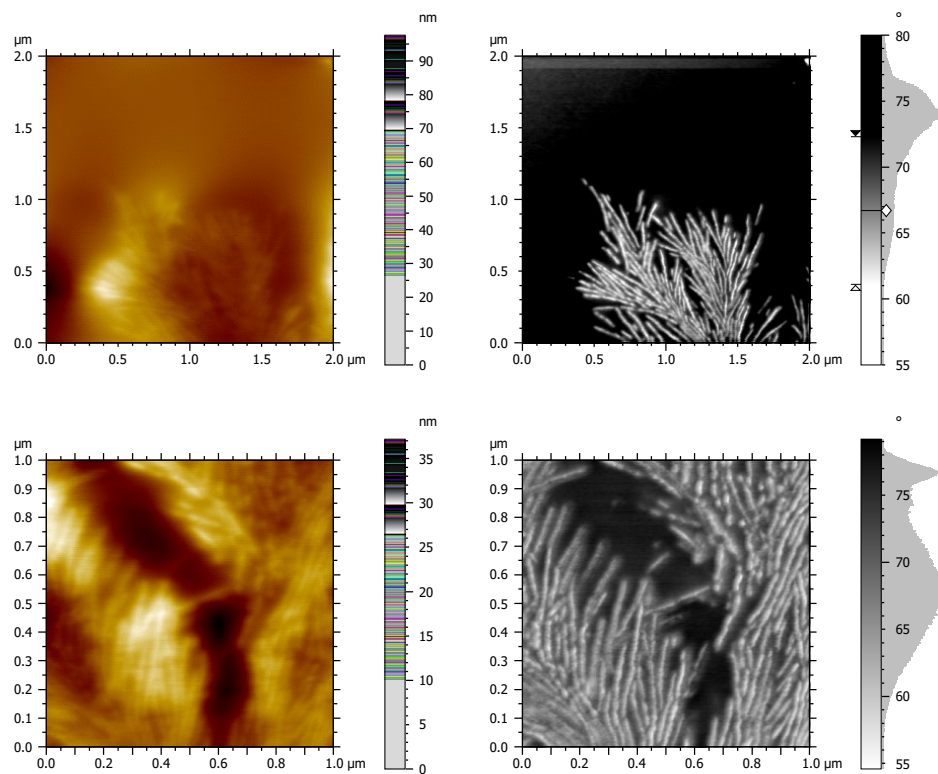


Figure S6. AFM images of PHEA-*l*-PEG 30:70 wt% networks.

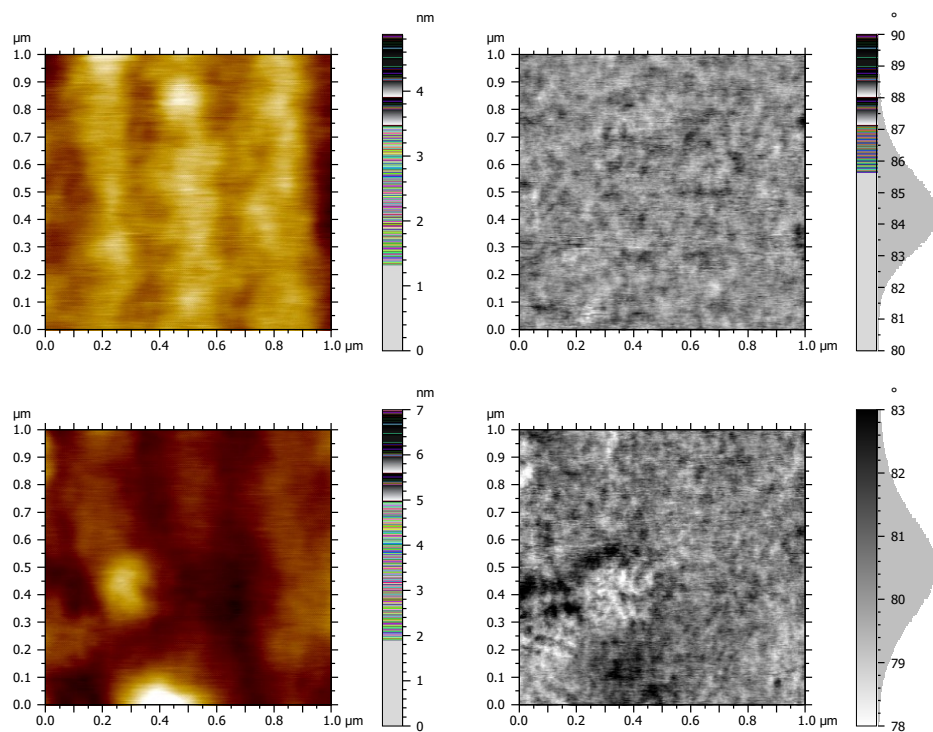


Figure S7. AFM images of PHEA-*l*-PBLA₂₀ 70:30 wt% networks.

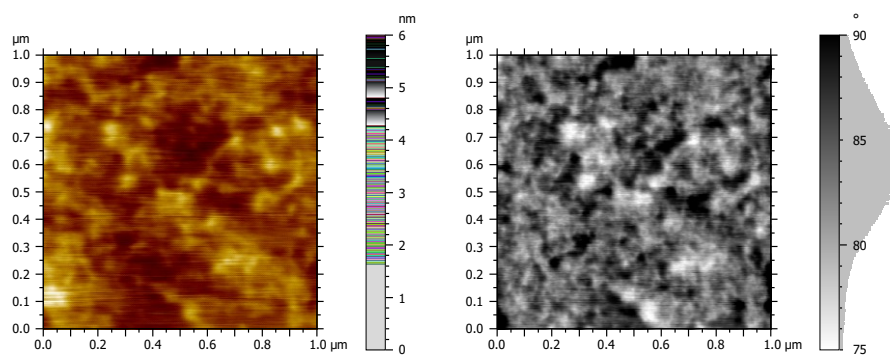


Figure S8. AFM images of PHEA-*l*-PBLA₂₀ 30:70 wt%.

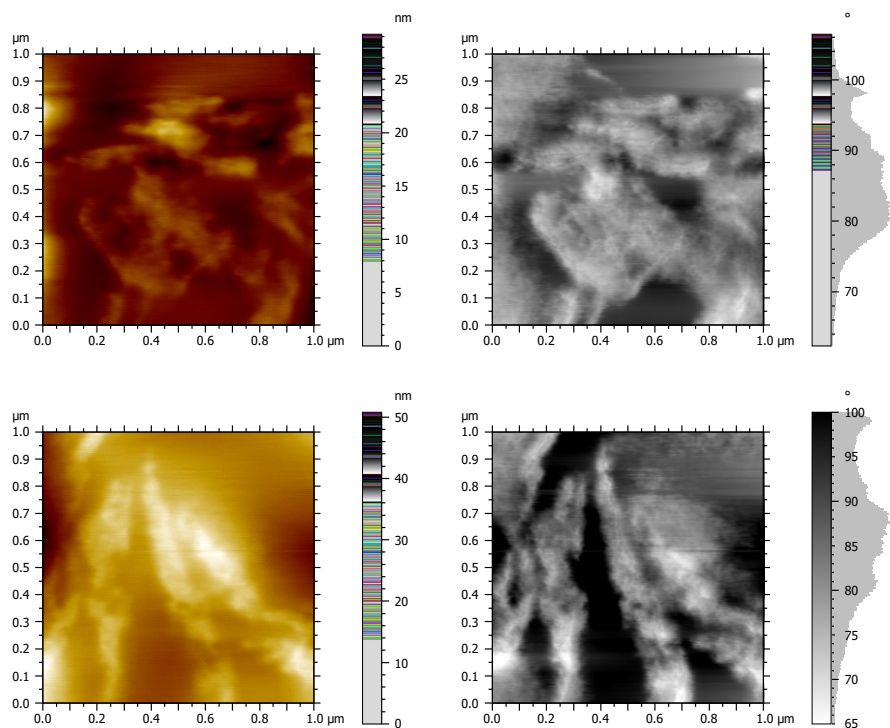


Figure S9. AFM images of PHEA-*l*-PBLA₂₅ 70:30 wt% networks.

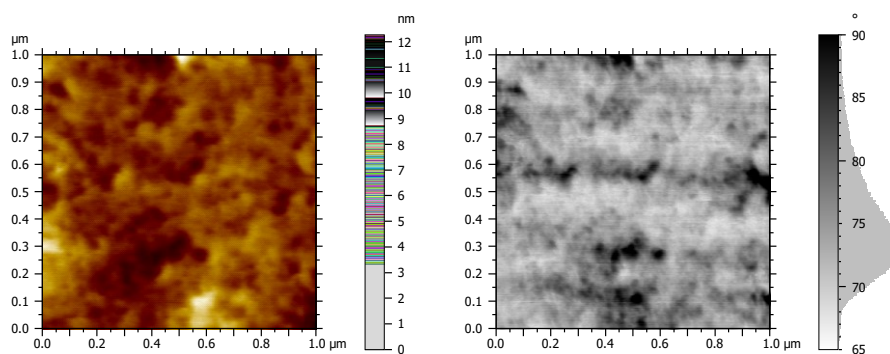


Figure S10. AFM images of PHEA-*l*-PBLA₂₅ 30:70 wt% networks

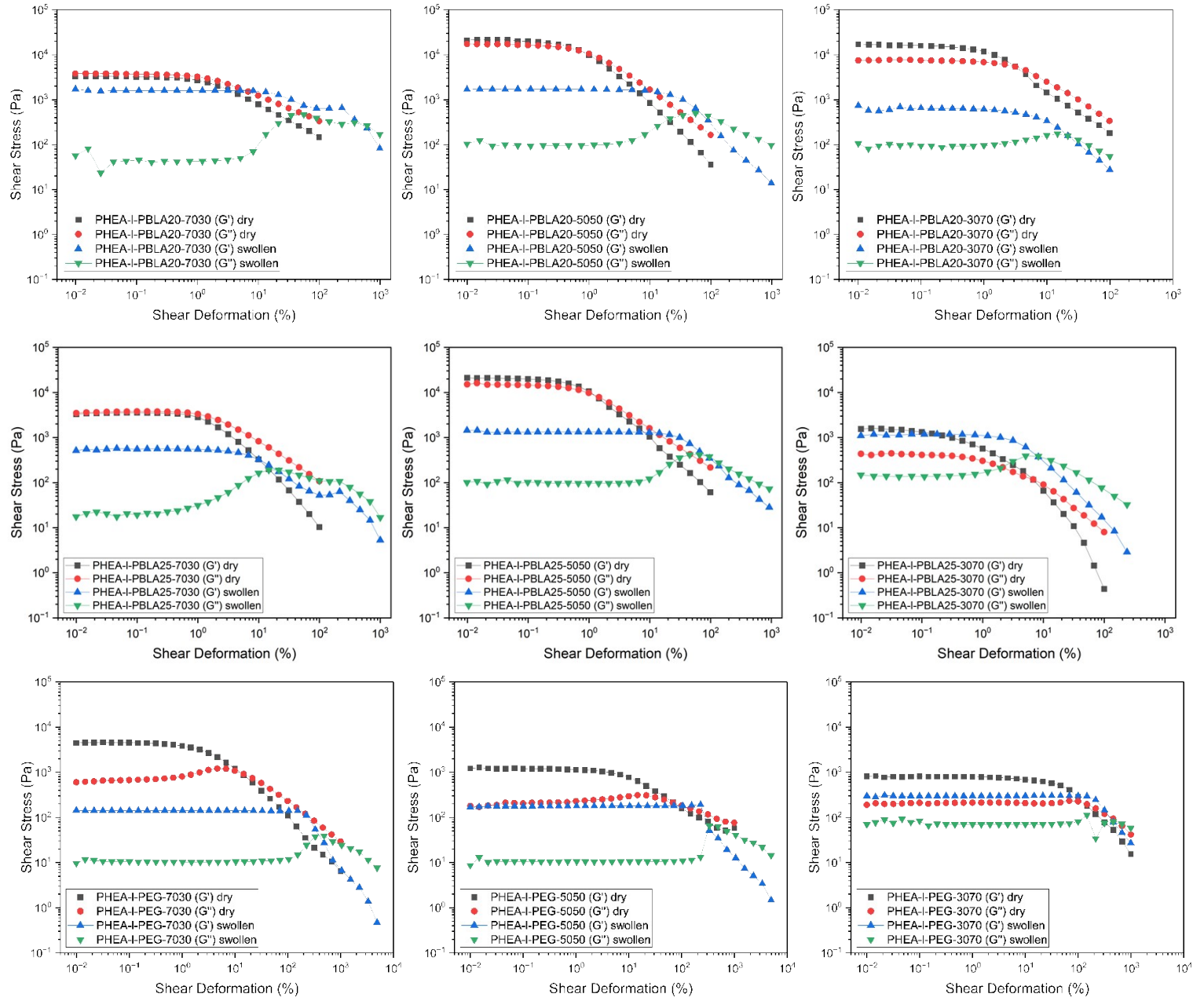


Figure S11. Rheology data of PHEA-*l*-PBLA₂₀, PHEA-*l*-PBLA₂₅ and PHEA-*l*-PEG networks in the dry and swollen state.