

Precision Gels from Collagen-Inspired Triblock Copolymers

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SUPPORTING INFORMATION

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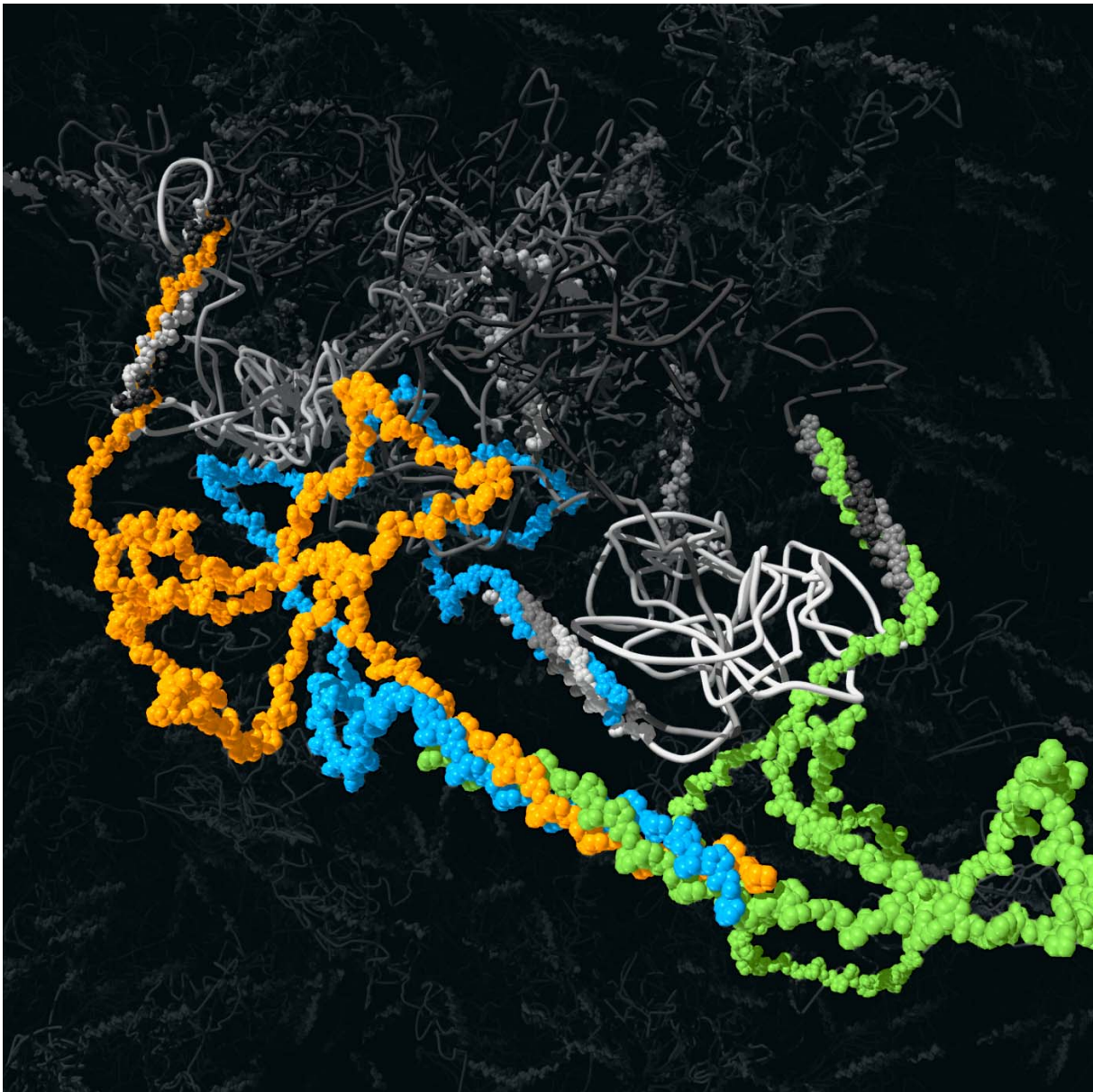


Figure S1. Artist's 3D impression of a gel formed by triblock copolymers. The (Pro-Gly-Pro)₉ trimeric knot in the foreground is highlighted with a different color for each chain. The three associated mid block spacers are freely interpreted random coils with approximately correct size relative to the end blocks. For clarity, the mid blocks in the background are represented as wires.

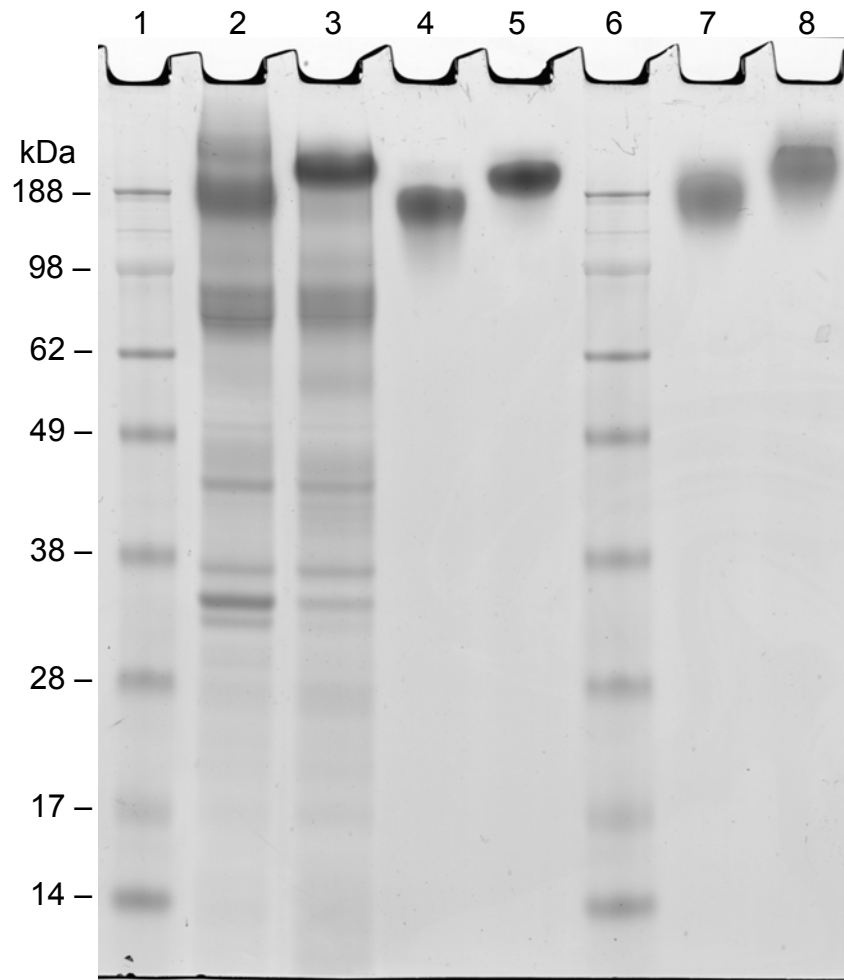


Figure S2. Full-length SDS-PAGE gel for Figure 2a. Lane 1, 6, molecular weight marker; lane 2, culture supernatant of **TR4T**; lane 3, culture supernatant of **TP4T**; lane 4, purified **TR4T**; lane 5, purified **TP4T**; lane 7, purified control protein **R4**; lane 8, purified control protein **P4**. For culture supernatants, 5 μ l was loaded, and for purified proteins ~20 μ g.

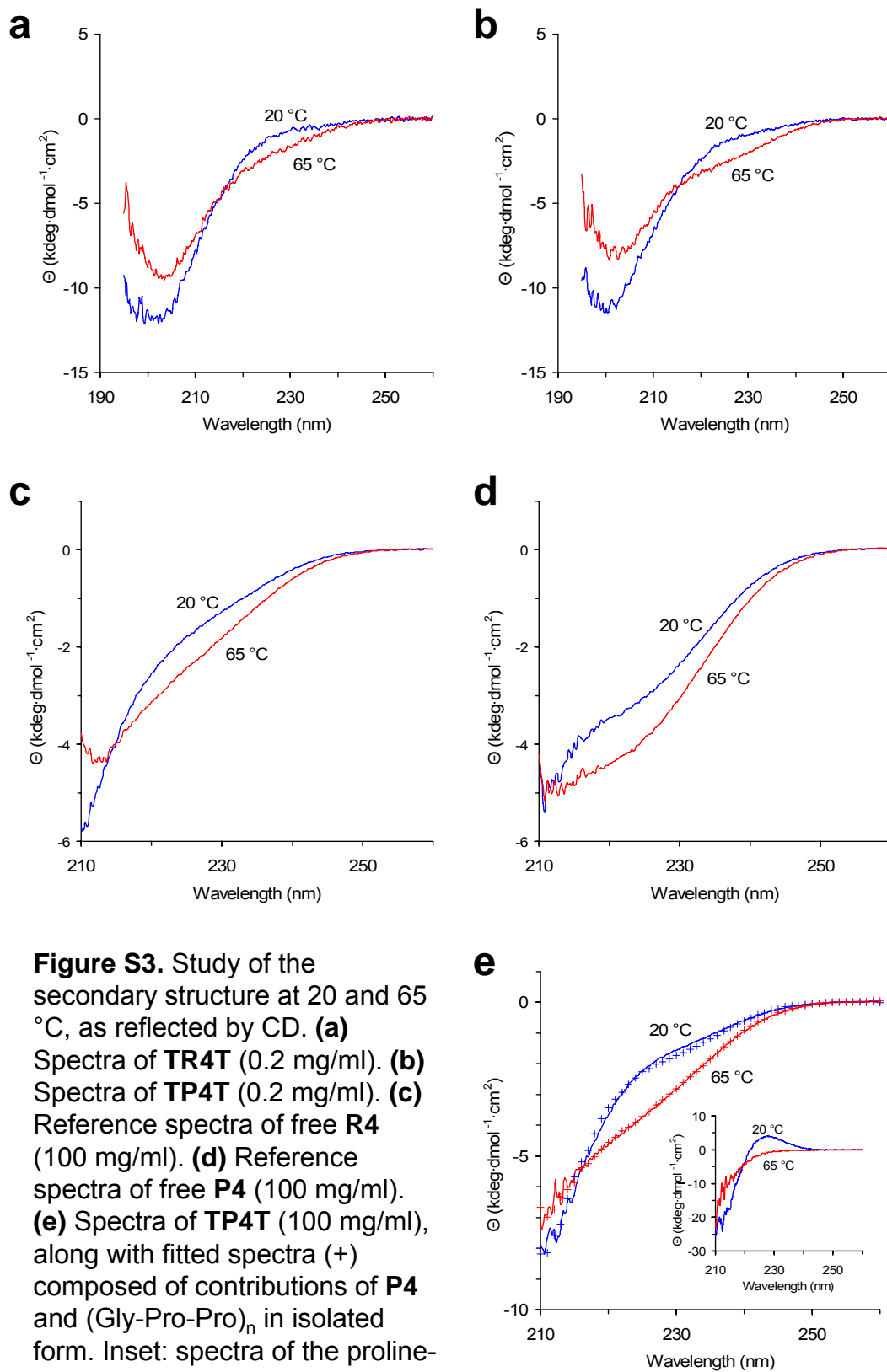


Figure S3. Study of the secondary structure at 20 and 65 °C, as reflected by CD. **(a)** Spectra of **TR4T** (0.2 mg/ml). **(b)** Spectra of **TP4T** (0.2 mg/ml). **(c)** Reference spectra of free **R4** (100 mg/ml). **(d)** Reference spectra of free **P4** (100 mg/ml). **(e)** Spectra of **TP4T** (100 mg/ml), along with fitted spectra (+) composed of contributions of **P4** and $(\text{Gly-Pro-Pro})_n$ in isolated form. Inset: spectra of the proline-rich end blocks, as deduced by subtracting the fitted contribution of **P4** from the spectra of **TP4T**.

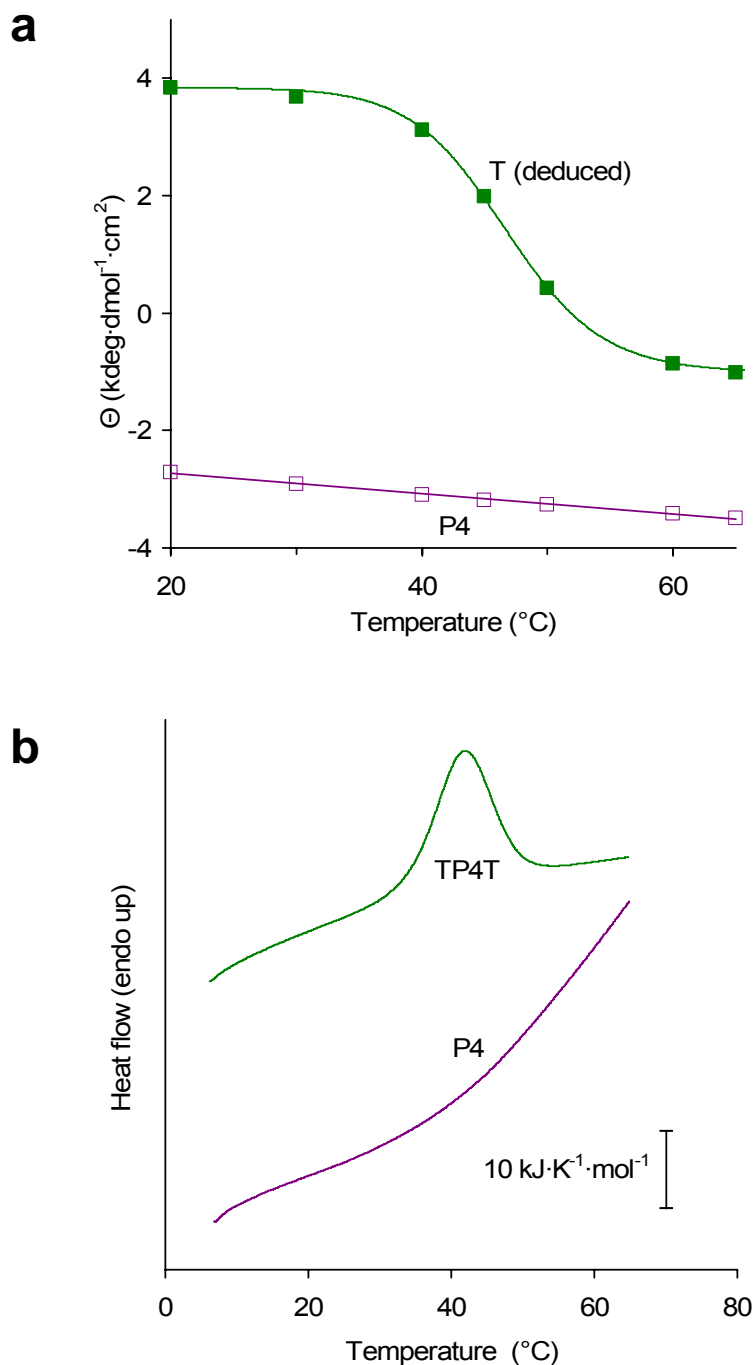


Figure S4. Thermal denaturation as reflected by **(a)** the average ellipticity from 230 to 225 nm or by **(b)** DSC. **(a)** Temperature profile of **P4** produced as a separate monoblock polymer, and of the proline-rich end blocks as deduced by subtracting the fitted contribution of **P4** from the melting curve of **TP4T**. **(b)** DSC thermograms of **P4** (1.4 mM) and **TP4T** (1.1 mM), recorded after equilibration for 10 h at 20 °C.

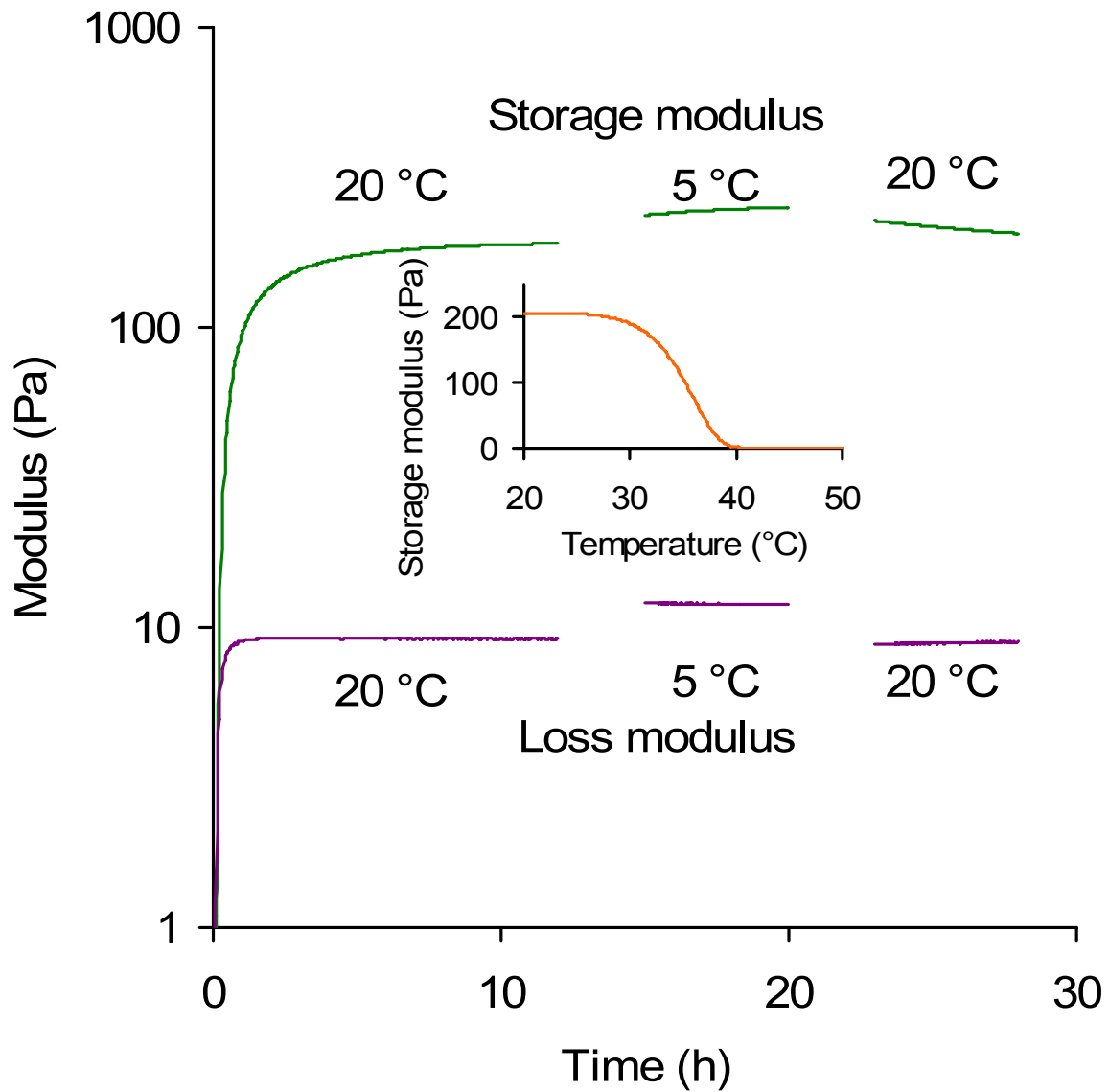


Figure S5. Characterization of a TP4T gel by dynamic rheology. The time-resolved storage and loss modulus were measured at the temperatures indicated, at a protein concentration of 2.2 mM. For each new temperature, the sample was allowed to equilibrate for three hours in the geometry before monitoring. Inset: storage modulus as a function of temperature.

Table S1. Oligonucleotide Sequences

Name	DNA sequence (5'-3')
T-FW	GAGTCTCACCCGGTGCTC
T-RV	CCACCGGCTGGTCCGGGAGGACCCGGTGGTCCAGGTGGACCTGGTGGTCCTGGTGGAC CAGGTGGACCAGGTGGACCAGGCGGACCCGGGAGCACCCGGGTGAGACTC
RA-FW	GCGCTCGAGAAAAGAGAGGCTGAAGCTGGTCCACCCGGTGAGTCACCAGGTCCTCAGC CTGGTGGTCCACAAAACCCAGGTTCCGGTGAAGGTCAGGGAAACGGTAACCCT
RA-RV	TGGGCCAGGGTTGGGGTTTGGTGGTTCACCGGAACCTGGAGAACCACCTCCTTGTGGTT GACCACCTTGAGATGGTCCATTCTTGTTAGGGTTACCGTTTCCCTGACCT
RB-FW	CAAACCCCAACCCTGGCCACAGAACGGTCAAAAGCCTGGTGGTCAACAAAACGGTCCT GGTAATGGTCAACAAGAGGGAAACGGTCAACAAAACGGTGGT
RB-RV	GCGTCTGCAGTACGAATTCTATTAGCCACCGGCTGGCTGACCTGGAGGTTTTCTGGTG GAGATCCAGGTCCGGACTGAGAACCACCACCGTTTTGTTGACCGTTTC



Supporting Movie. Time-lapse movie of a melting TR4T gel (actual time ~2 min). The glass tube on the left contains the gel with a metal bead placed on top. The water in the beaker is heated with a stirred hot plate. The thermometer ($^{\circ}\text{C}$ scale) serves illustrative purposes only, as the actual temperature rise inside the tube probably lags behind.