

**Reversible Polypeptide Hydrogels from Asymmetric Telechelics with Temperature-dependent and Ni<sup>2+</sup>-dependent Connectors.**

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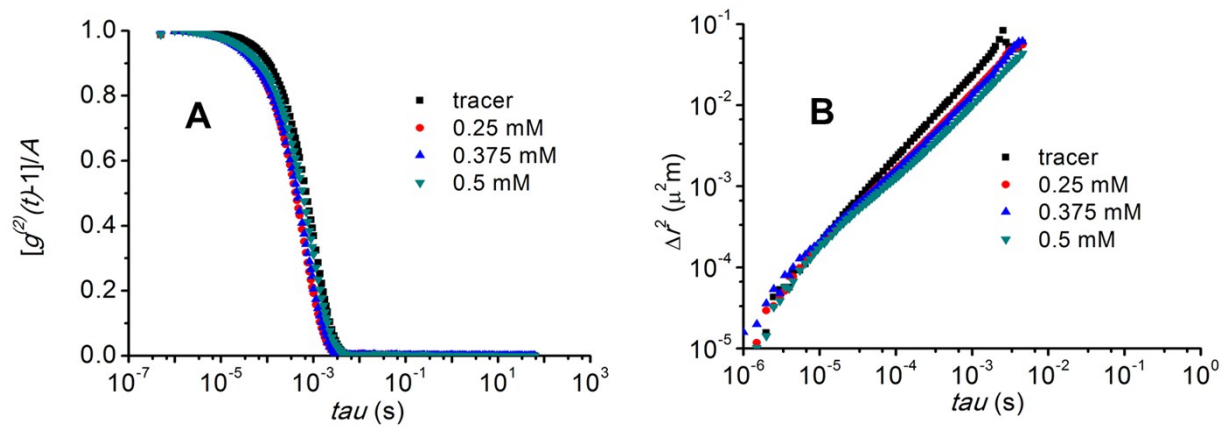


Figure SI1. DLS-based microrheology of protein TR<sub>4</sub>H and Ni<sup>2+</sup> complex at 50 °C at a mole ratio  $f(\text{Ni}/\text{TR}_4\text{H})=0.5$ , at varied TR<sub>4</sub>H concentrations in buffer MES 10 mM pH 6.5. (A) Normalized intensity correlation functions measured at a scattering angle of 173° for probes (tracer) with radius of 200 nm in the Ni/TR<sub>4</sub>H solution after heated to 50 °C for 10 minutes. (B) Mean-square displacement of 200 nm probes deducted from A.

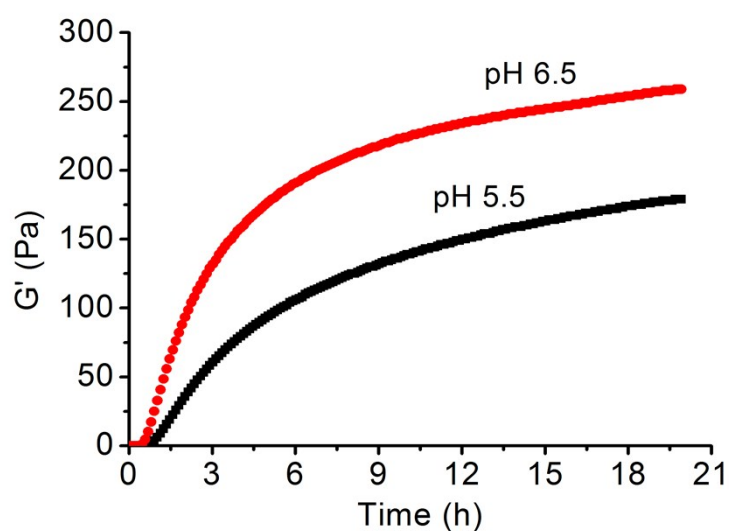


Figure SI2. Rheology of Ni/TR<sub>4</sub>H hydrogels at 10 °C at mole ratio  $f(\text{Ni}/\text{TR}_4\text{H})=0.5$  for at TR<sub>4</sub>H concentration of 1.25 mM (50 gL) in different pH (MES buffer 10 mM). Storage modulus as a function of gel age at different pH.

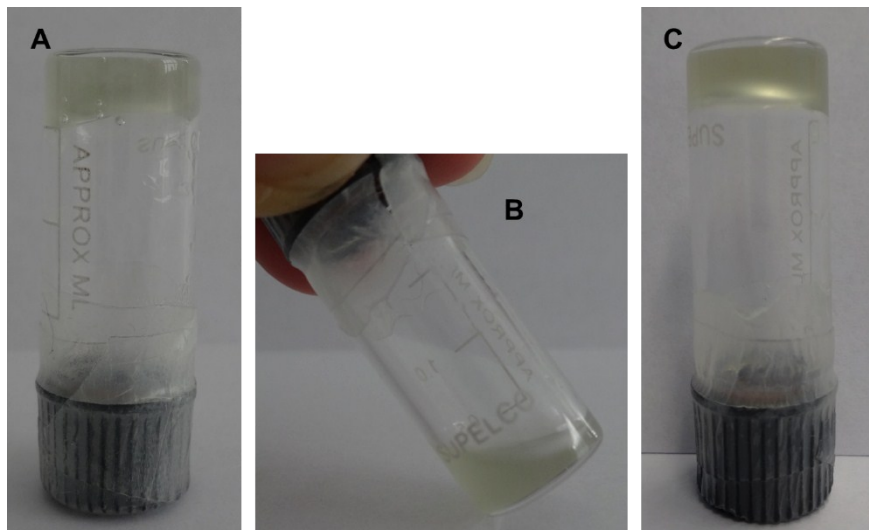


Figure SI3. Visual experiments on temperature responsive properties of Ni/TR<sub>4</sub>H hydrogel (with TR<sub>4</sub>H concentration of 1.5 mM) in MES 10 mM pH 6.5 at mole ratio  $f=0.5$ . (A) Ni/TR<sub>4</sub>H hydrogel formed at 5 °C for 20 h. (B) Melted Ni/TR<sub>4</sub>H hydrogel after heated at 50 °C for 10 minutes. (C) Reformation of Ni/TR<sub>4</sub>H hydrogel at 5 °C.