

Supplementary Information for

Improving the bioactivity and mechanical properties of poly(ethylene glycol)-based hydrogels through a supramolecular support network

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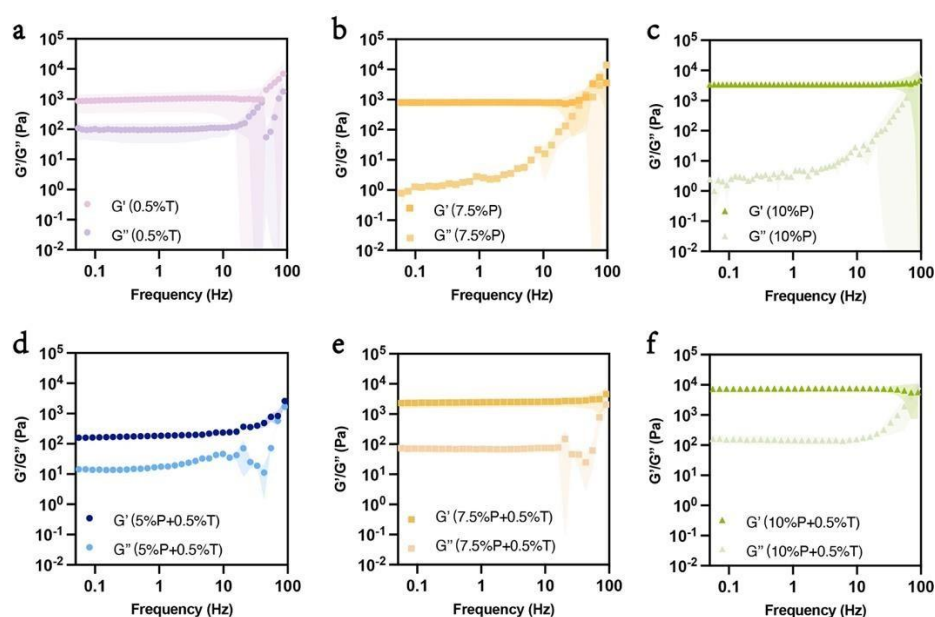


Figure S1. Rheological Analysis of PEGDM/Trpzp Hydrogels. **(a-c)** Frequency sweep measurements of the storage (G') and loss modulus (G'') for hydrogels composed of 0.5% (w/v) Trpzp, 7.5% (w/v) PEGDM, and 10% (w/v) PEGDM, showing the response to increasing strain. **(d-f)** Frequency sweep measurements of the storage (G') and loss modulus (G'') for hybrid hydrogels with 5%, 7.5%, and 10% (w/v) PEGDM combined with 0.5% (w/v) Trpzp indicating the influence of Trpzp on the mechanical behavior and frequency tolerance of the PEGDM network. All tests were performed in triplicate ($n=3$).

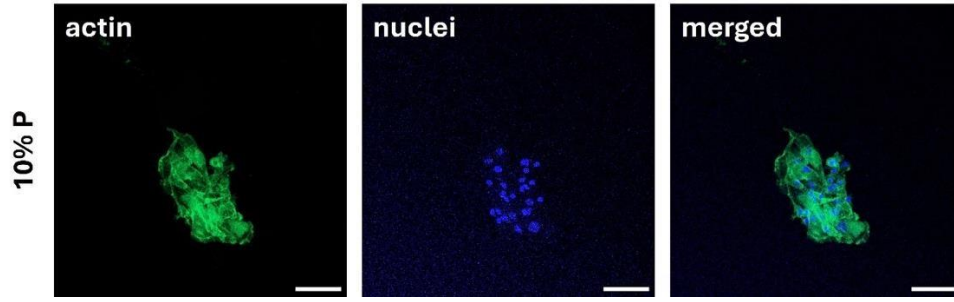


Figure S2. Morphology and Quantitative Analysis of ADSCs Cultured on PEGDM Hydrogels After 2 Days. Confocal microscopy images of adiposederived stem cells (ADSCs) cultured on 10% (w/v) PEGDM hydrogel formulations stained for nuclei (blue, DAPI) and actin (green, phalloidin) after 2 days. Scale bar: 100 μm .

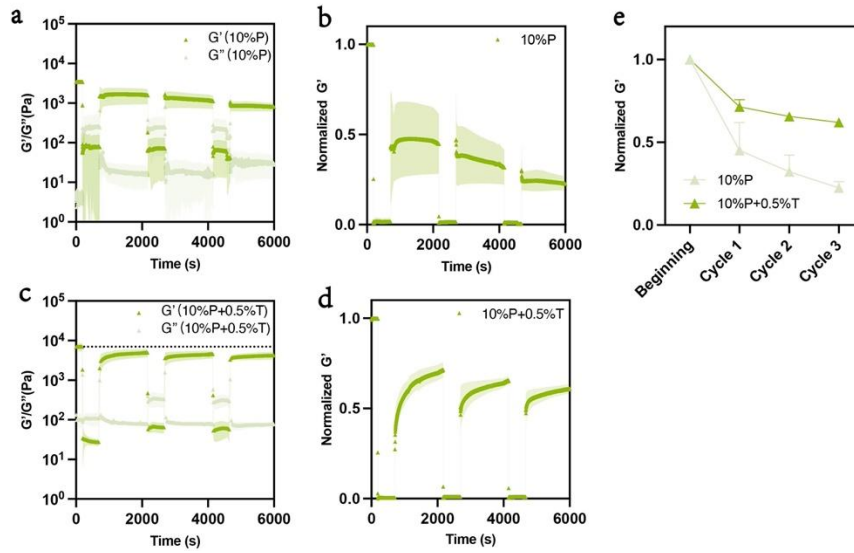


Figure S3. Self-healing properties of PEGDM/Trpzp hydrogel. **(a)** and **(c)** are thixotropic measurements of storage modulus (G') and loss modulus (G'') of 10% (w/v) PEGDM and 10%PEGDM/ 0.5% (w/v) Trpzp hydrogels. Their normalized storage modulus (G') changes are shown in **(b)** and **(d)**. **(e)** The changes of the normalized mean value of storage modulus (G') in each cycle of 10% (w/v) PEGDM and 10%PEGDM/ 0.5% (w/v) Trpzp hydrogels. All tests were performed in triplicate ($n=3$)

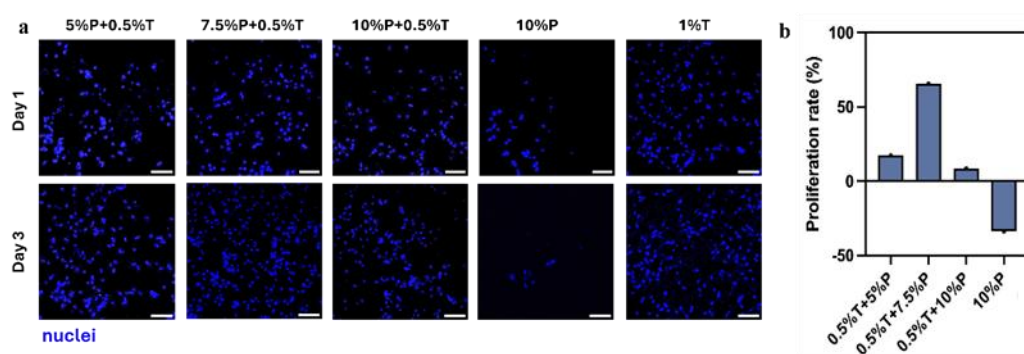


Figure S6. Cell proliferation of ADSCs Cultured on PEGDM/Trpzip Hydrogels After 1 and 3 Days. **(a)** Confocal microscopy images of adipose-derived stem cells (ADSCs) cultured on various hydrogel formulations stained for nuclei (blue, DAPI) after 1 and 3 days. The different hydrogel formulations include 0.5% (w/v) Trpzip, 5% PEGDM + 0.5% Trpzip, 7.5% PEGDM + 0.5% Trpzip, and 10% PEGDM + 0.5% Trpzip. Scale bar: 100 μ m. **(b)** The proliferation rate of each hydrogel comparing from Day 1 and Day 3 culturing.