Supporting Information

In situ forming interpenetrating hydrogels of hyaluronic acid hybridized with iron oxide nanoparticles

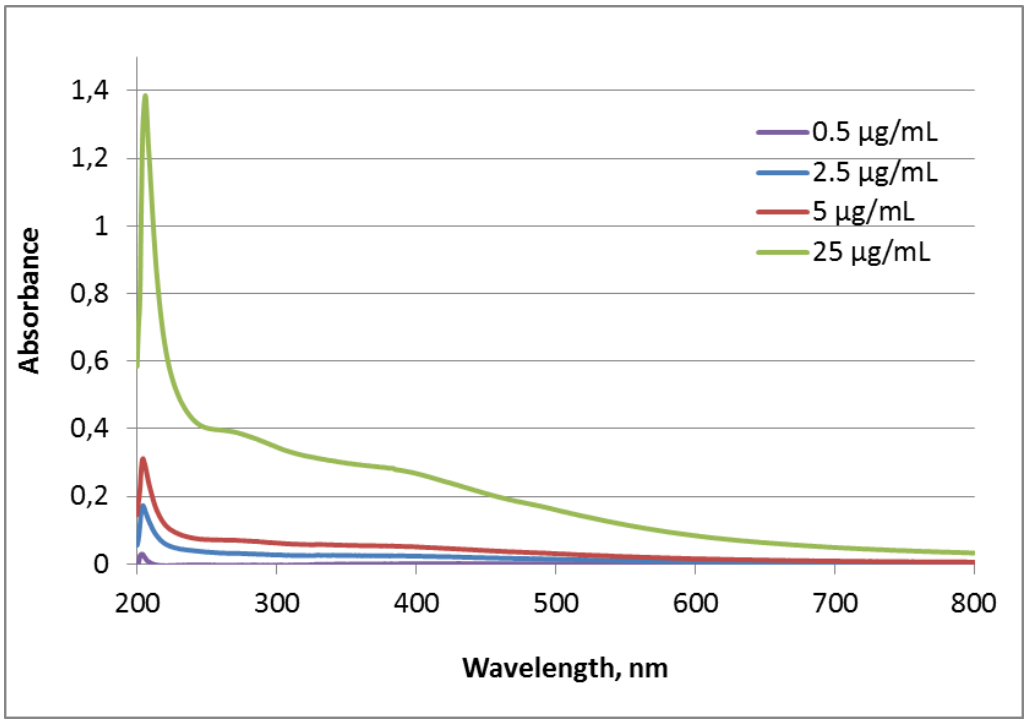
Malihe Kheirabadi,[a] Liyang Shi,[d] Reza Bagheri,*[b,c] Kourosh Kabiri,[c] Jöns Hilborn[d] and Dmitri A. Ossipov*[d]

[a] Institute for nanoscience and Nanotechnology, Sharif University of Technology, Azadi Street, P.O. Box 11155-8639, Tehran, Iran

[b] Polymeric Materials Research Group, Department of Materials Science and Engineering, Sharif University of Technology, Azadi Street, P.O. Box 11155-9466, Tehran, Iran

[c] Iran Polymer and Petrochemical Institute (IPP), P.O. Box 14965-115, Tehran, Iran

[d] Science for Life Laboratory, Devision of Polymer Chemistry, Department of Chemistry-Ångström Laboratory, Uppsala University, Ångström Laboratory, SE-75121, Uppsala, Sweden



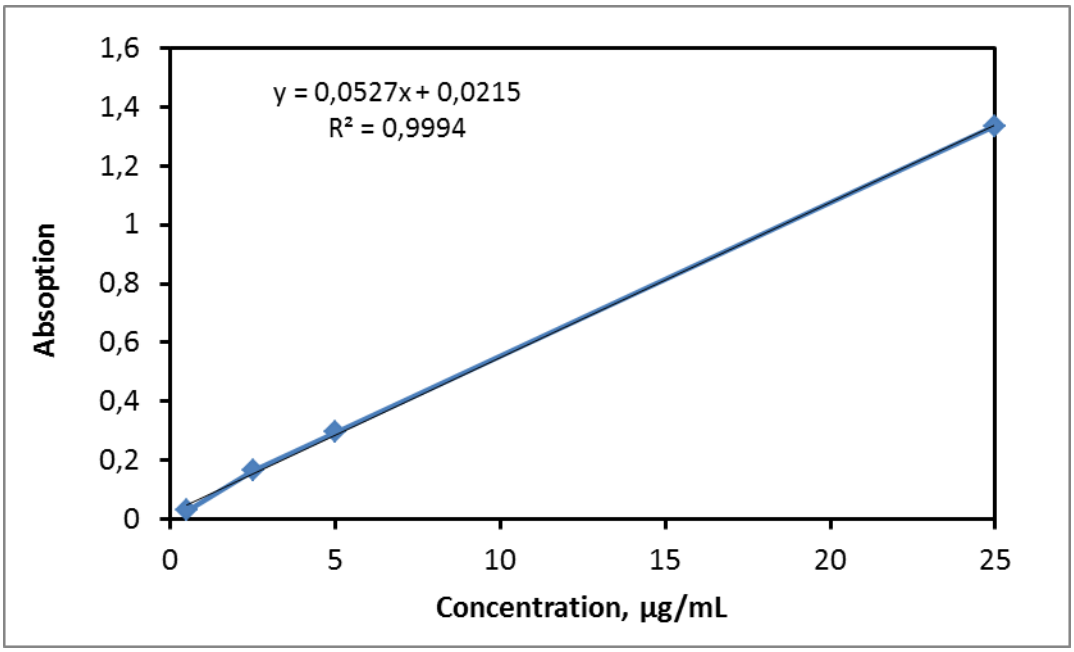


Figure S1. (a) UV-vis spectra of IONPs in PBS at different concentrations (b) Standard UV-vis calibration curve for solutions of IONPs in PBS at different concentrations.

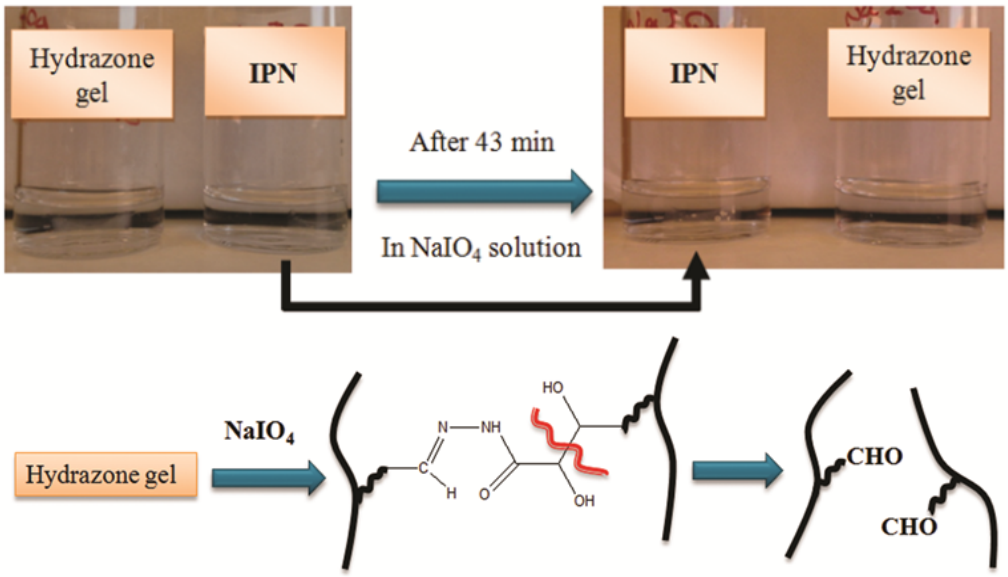


Figure S2. Images of hydrazone gel (as single network) and IPN before and after treatment with $NaIO_4$ solution (9.35 mM). After 43 min, the single network was completely degraded but IPN was not degraded.

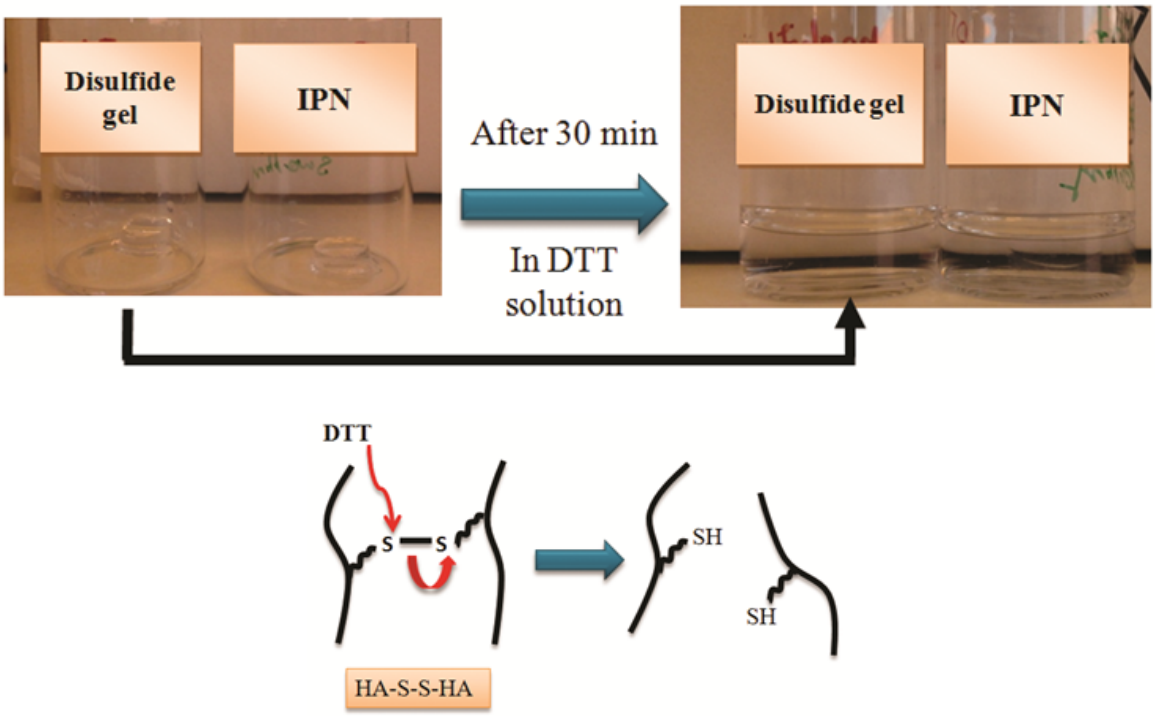


Figure S3. Images of disulfide gel (as single network) and IPN before and after treatment with the DTT solution (25 mM). After 30 min, the single network was completely degraded.

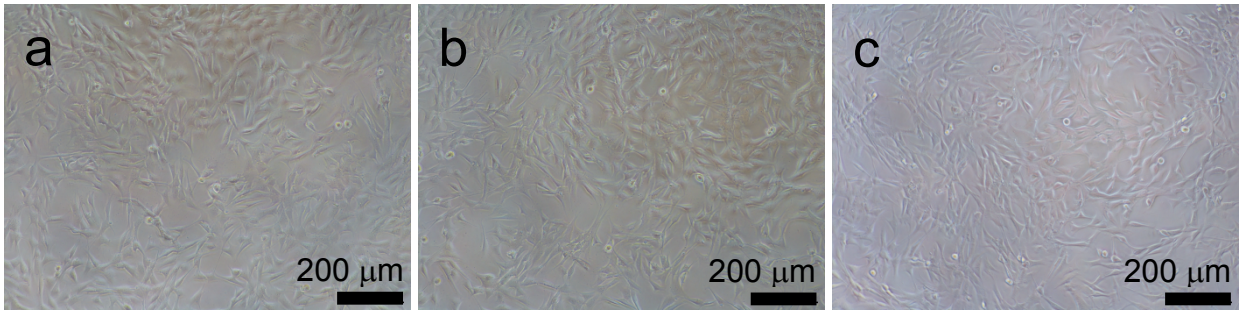


Figure S4. Cell morphology after culture derived from (a) IPN, (b) IPN+IONP, and (c) after culture in normal medium.

Table S1. The maximum absorption intensity of the solutions obtained after one (S-1, SN-1) and three times washing (S-3, SN-3) of the disulfide cross-linked hydrogels either non-hybridized (S) or hybridized with iron oxide nanoparticles (SN).

Sample	S-1	SN-1	S-3	SN-3
$A_{203\text{-}208\ nm}$	0.805±0.019	2.066 ±0.084	-	-
Concentration of released IONPs (μg/mL)	14.867±0.297	38.789 ±0.1.599	-	-