Supporting Information for Publication

Heparin Functionalized Injectable Cryogel with Rapid Shape-Recovery property for Neovascularization

Inseon Kim[1, ‡], Seunghun S. Lee[2, ‡], Sunghoon Bae[1], Hoyon Lee[1] and Nathaniel S. Hwang[1, 2, 3]*

[1] School of Chemical and Biological Engineering, the Institute of Chemical Processes, Seoul National University, Seoul, 08826, Republic of Korea

[2] Interdisciplinary Program in Bioengineering, Seoul National University, Seoul, 08826, Republic of Korea.

[3] BioMAX/N-Bio Institute, Seoul National University, Seoul, 08826, Republic of Korea

‡These authors contributed equally.

*Corresponding author

Supporting Information Captions

Figure S1. Fourier-Transform Infrared Spectroscopy (FT-IR) for gelatin/heparin cryogels (G1H0.1, G1H0.3 and G1H0.5)

Figure S2. The quantative analysis of pore area of gelatin/heparin cryogels in SEM images.

Figure S3. SEM images of microstructure of gelatin/heparin cryogels (G1H0.3) synthesized at different freezing temperature at (-80°C and -196°C)

Figure S4. Reaction efficiency and gel fraction of cryogel.

Figure S5. VEGF loading efficiency in gelatin/heparin cryogels rely on the heparin concentration. (A) The amount of unbounded VEGF released from scaffold 10min after loading VEGF. (B) The total percentage of encapsulated VEGF compared to the initial amount of VEGF (100ng/mL).

Figure S6. DAPI stained cells in cryogels from *in vivo* to confirm overall cell distribution

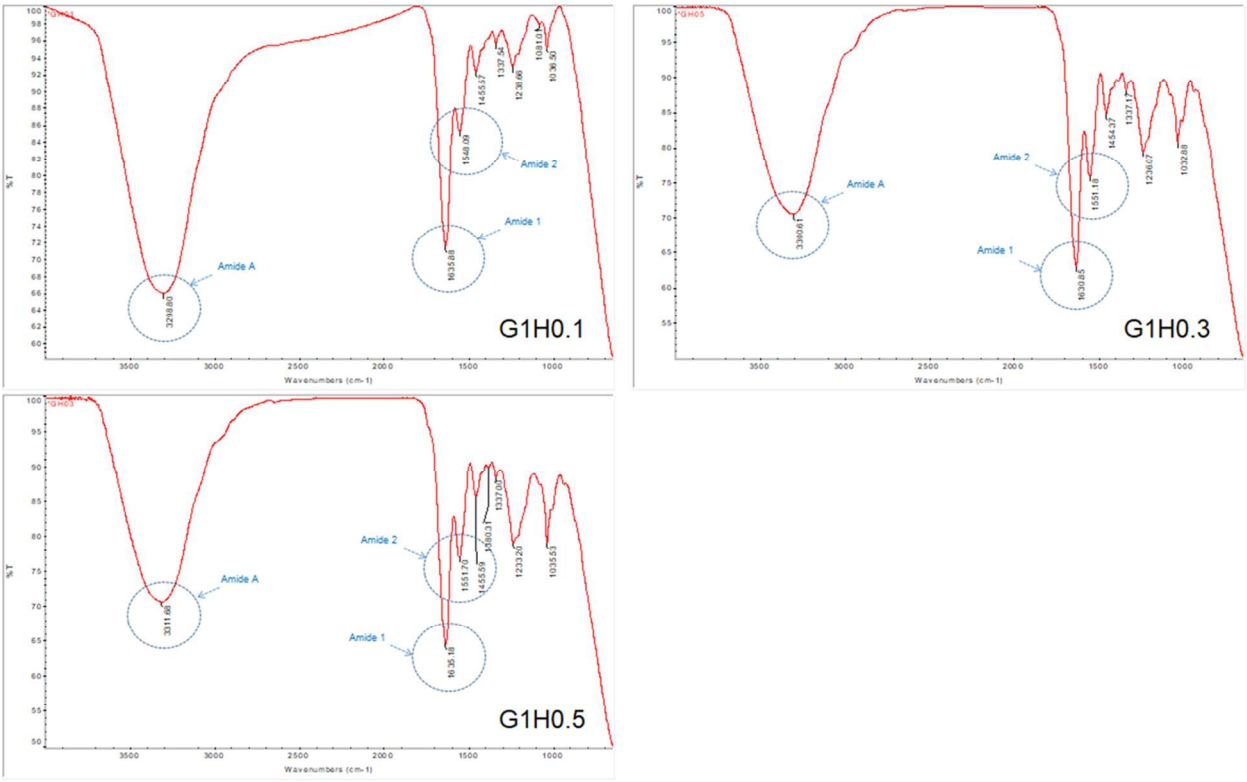


Figure S1. Fourier-Transform Infrared spectrum (FT-IR) of gelatin/heparin cryogels (G1H0.1, G1H0.3 and G1H0.5). Synthesized cryogel was swollen with distilled water and analyzed by Nicolet 6700 (Thermo Scientific, USA). (No. of scan: 32, Resolution: 8, Wavenumber range (cm^{-1}): 4000-650)

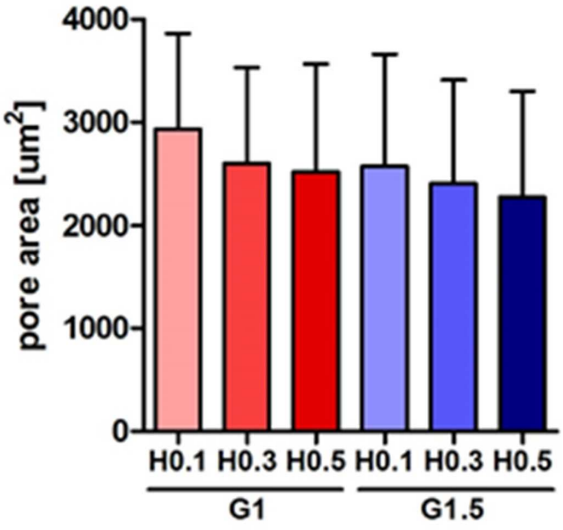


Figure S2. The quantative analysis of pore area of gelatin/heparin cryogels in SEM images. Error bars indicate SD.

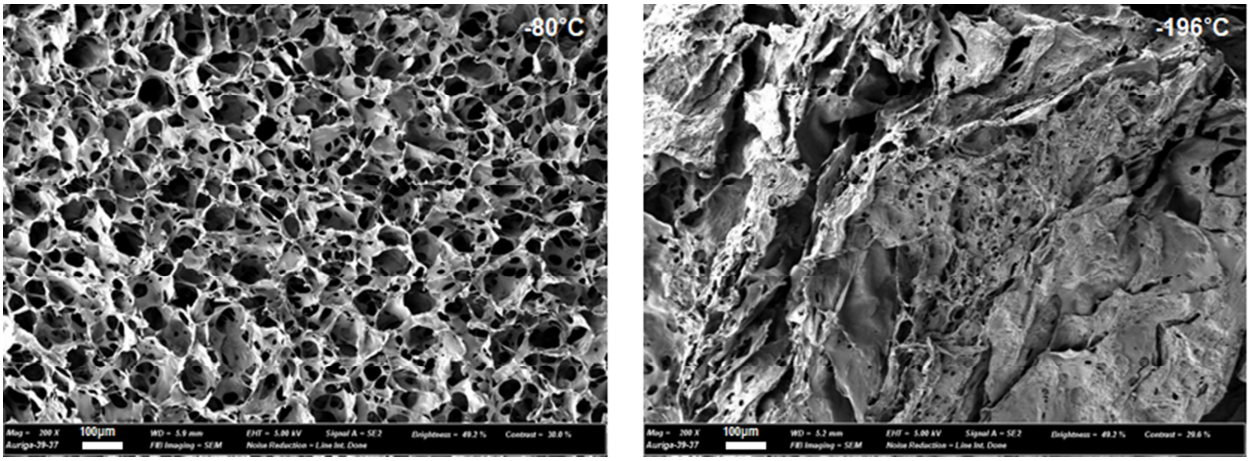


Figure S3. SEM images of microstructure of gelatin/heparin cryogels (G1H0.3) synthesized at different freezing temperature at (-80°C and -196°C)

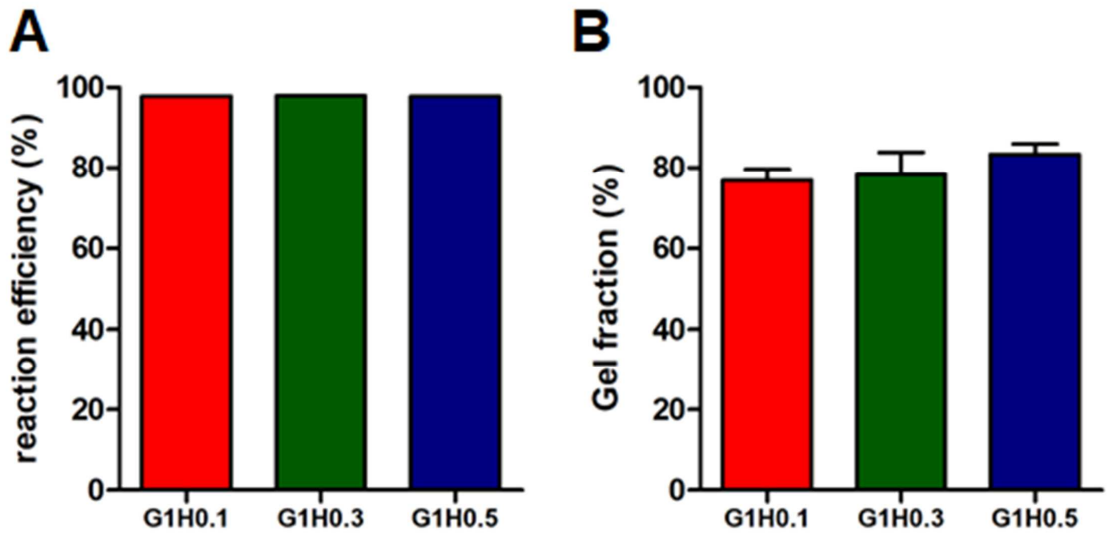


Figure S4. Reaction efficiency and gel fraction of cryogel. (A) Reaction efficiency of gelatin during cryogelation. (n=5). This was calculated by the difference between the amount of initial gelatin and unreacted gelatin which is released from gelatin/heparin cryogel after swelling. (B) Gel fraction of gelatin/heparin cryogel. This was calculated based on following equation | % Gel fraction = (W(ex)/W(th)*100, where W(ex) is the weight of actual dry polymer and W(th) is the theoretical weight of polymer after 100% gelation. Error bars indicate SD.

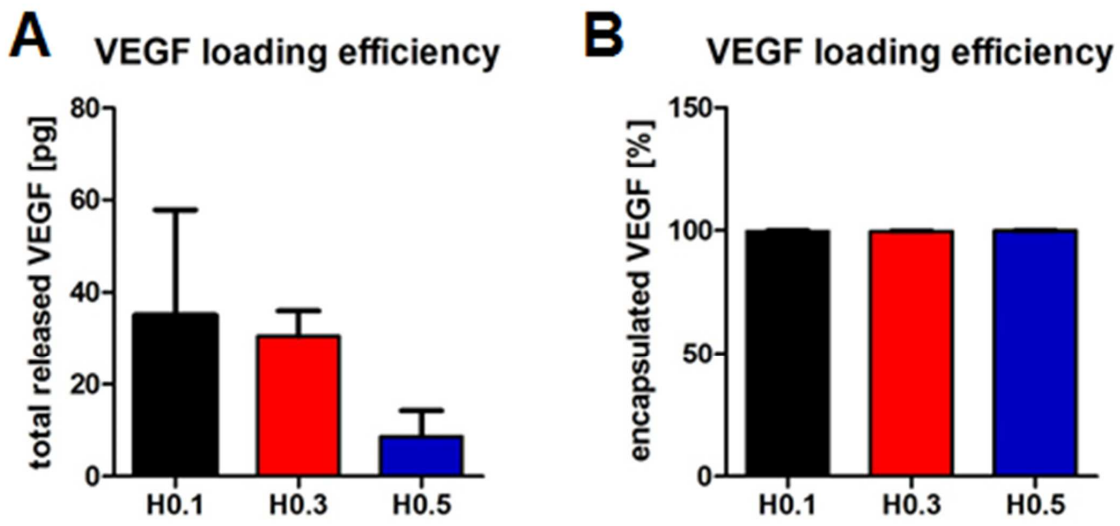
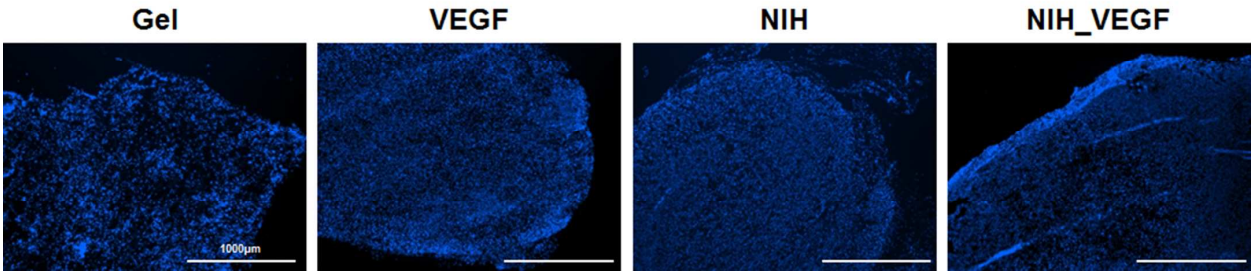


Figure S5. VEGF loading efficiency in gelatin/heparin cryogels rely on the heparin concentration. (A) The amount of unbounded VEGF released from scaffold 10min after loading VEGF. (B) The total percentage of encapsulated VEGF compared to the initial amount of VEGF (100ng/mL). Error bars indicate SD.



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