Supporting Information

In Vitro and In Vivo Analysis of Visible Light Crosslinkable Gelatin Methacryloyl (GelMA) Hydrogels


Figure S1. Representative SEM images of 10 % (w/v) GelMA hydrogels synthesized using 1 % (w/v) VC, 0.1 mM Eosin Y, and 180 sec light exposure time with (a,d) 1.5, (b,e) 1.0, and (c,f) 0.5 % (w/v) TEA. Paired images (center/top) were acquired from the same hydrogel. (scale bars: 200 μm).
Figure S2. Mechanical properties of visible light crosslinked GelMA hydrogels synthesized with different concentrations of Eosin Y. (a) Representative compressive strain/stress curves and (b) compressive modulus of 10 %(w/v) GelMA hydrogel made by various concentrations of Eosin Y, 1 %(w/v) VC, 1 %(w/v) of TEA, and 180 sec light exposure time. Error bars represent the SD of measurements on 3 independent samples (*p < 0.05, **p < 0.01, ***p < 0.001 and ****p < 0.0001).
Figure S3. *In vitro* 2D and 3D cell culture of 3T3 seeded on the visible light crosslinked GelMA hydrogels. (a, b) Fluorescent live/dead images of 3T3 cells seeded on the surface of visible and UV light crosslinked GelMA hydrogels (scale bar = 200 μm). (c) Quantitative analysis of cell viability of 3T3 cells seeded on visible and UV light crosslinked GelMA hydrogels. (d) Fluorescent F-actin/DAPI images of 3T3 cells seeded on the surface of visible light crosslinked GelMA hydrogels after 7 days of seeding (scale bar = 100 μm). (e, f) Quantitative analysis of cell density and cell spreading area from F-actin/DAPI staining at days 1, 4, and 7 post-seeding. (g, h) Representative live/dead images of 3T3 cells 3D encapsulated in visible light crosslinked GelMA hydrogels at days 1 and 4 post-encapsulation (scale bar = 200 μm). (i) Quantification of cell viability of 3D encapsulated 3T3 cells at days 1, 4, and 7 post-encapsulation in visible and UV light crosslinked 10 % (w/v) GelMA hydrogels. (j, k) Fluorescent F-actin/DAPI images of 3T3 cells 3D encapsulated at days 1 and 4 post-seeding (scale bar = 100 μm) (*p < 0.05, **p < 0.01, ***p < 0.001 and ****p < 0.0001). Visible light crosslinked hydrogels were synthesized using 10 % (w/v) GelMA, TEA: 1.5 % (w/v), VC: 1 % (w/v), and 0.1 mM Eosin Y, time: 20 sec. Ultraviolet light crosslinked hydrogels were synthesized using 10 % (w/v) GelMA, 0.5 % (w/v) Irgacure 2959, time: 20 sec.